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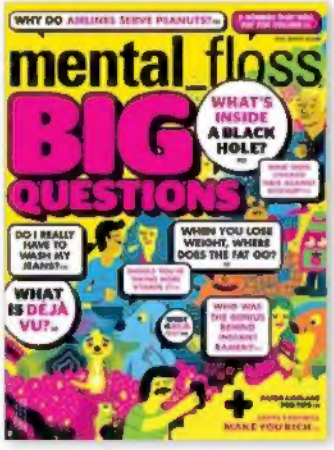
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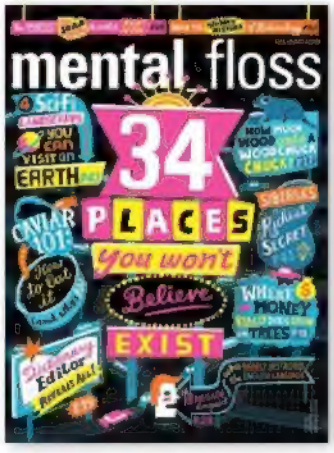
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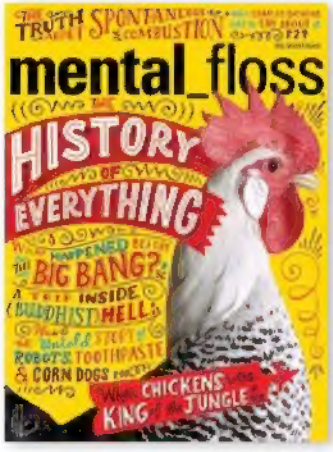
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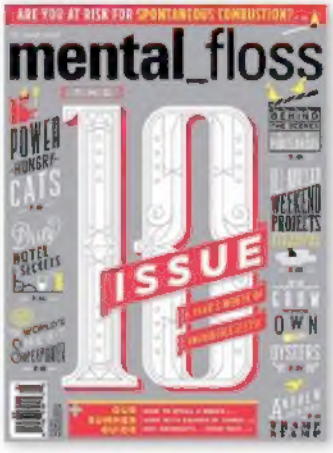
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DEAR READER,

(A note about your final issue)

There's this wonderful Calvin and Hobbes comic where Calvin is bemoaning that rock 'n' roll is no longer a useful way to protest. Rock artists sold out, he says. They're no longer passionate or sticking it to The Man. So Calvin suggests his generation will have to rely on something different. Fortunately, he's discovered something truly rebellious: Muzak. And as it flows out of his little speaker, he tells Hobbes the kicker: "I play it real quiet, too."

If playing Muzak (softly)[1] is the ultimate rebellion, two nerds setting out to start an educational magazine feels like a close second. But we've been lucky to do this for 15 years. When we started, we waited tables and babysat and taught as substitutes. When our shifts ended, we wrote emails to vendors and edited articles till our eyes were tired.[2] We were fueled by the incredible love and support of our families—that cannot be overstated. Along the way, we convinced an extraordinarily loving couple to become our investors,[3] and a handful of talented believers to become our colleagues.[4] With every issue, we felt like we'd gotten away with something.[5] Because we had—we had muscled dream jobs into existence. We got to spend our days learning for a living.

But through all of this, the most improbable piece of the puzzle was you. We knew we could find great stories—there are centuries of lush history and incredible adventure tales just waiting to be plucked and dusted off and told just so.[6] But we didn't anticipate that there would be so many of you. It's the librarians who promoted us, the teachers who brought us into classrooms, the shopkeepers who pushed us near their registers, and the knowledge junkies who kept our magazines on their coffee tables (and by their toilets!). And it's all those people who used their voices to evangelize for *mental_floss*. Thank you. Sincerely. It's you who sustained us, and helped turn this little publication into a more ambitious one. We worked to make each issue better because we wanted to be better for you.

While this is the final issue of *mental_floss* magazine, we're hoping it's not the last you'll hear from us. We've loved creating a print product, but fighting for space on the newsstand and Pony Expressing issues to doorsteps are no longer the best ways to get you the stories you want. There are more than 20 million Flossers reading and watching *mental_floss* online, and for us, it feels like there are so many opportunities for new adventures. We want to build a stronger digital community. We want to find new ways of telling centuries-old stories. And we want you with us.

So savor this magazine. Our remarkable staff[7] worked so hard to pull it together for you, and it feels like a fitting ending. It's truly one of our loveliest issues. But when you're done reading, come and play with us online. We'll be looking for you.

Keep Flossing,

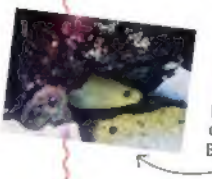
Will and Mangesh[8]

[1] We used to have Muzak playing in our first *mental_floss* office, but not intentionally. The former tenant, a dentist, never turned it off. If everyone stopped talking you'd hear it softly in the background. (It inspired some terrible dance parties.)

[2] Without a budget, we also had to draw our own magazine art. A young and talented Winslow Taft stepped in and fixed that. He is one of the best things that could have happened to this magazine. (One of Mangesh's early covers that Winslow improved.)

[3] Toby and Melanie Maloney were our biggest angels. But we had others: Along with Tom Gallagher, Jerry Footlick and his wife, Ceil Cleveland, were early supporters. Samir Husni and Bob Bliwise helped assemble a formidable advisory board. And Felix Dennis and his team, of course, helped us grow and sustain the print edition for the past five years.

[4] There are so many people to acknowledge (we've likely missed a few), but we owe a great deal to our earliest print staffers Neely Harris, John Cascarano, Lisako Koga, Christine Hoover, and John Green. We're also indebted to Mary Carmichael, Maggie Koerth-Baker, Terri Dann, Jenny Drapkin, Jason English, Ethan Trex, Stephanie Meyers, Joe Mejia, Josh Moore, and Sean Turner. Unfortunately, the only pic we could find was of our short-lived office eel, Banana. (RIP, Banana.)



[5] Another thing we somehow got away with.

[6] In an early issue, we published the words *congenial disease* instead of *congenital*. (The Mental Flaw defended it by telling readers that we didn't want our moms reading the word *genital* in print.) But publishing 76 pages without any real errors is no small feat. Thank you, Sandy Wood, Kara Kovalchik, and Riki Markowitz.

[7] Jessanne has written about the staff in her letter, but it's hard to find words for how deeply gifted she and her team are and how committed they've been to churning out wonderful issue after issue.

[8] Thank you, Duke University, for forcing us to live in the same freshman hallway ... and for letting us use your PageMaker.

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ALAMY (ZEBRA)

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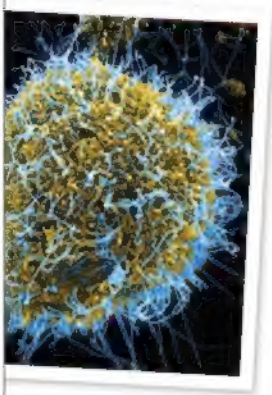

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CARY NORTON (DRINK); STEVEN TWIGG (CAT); CDC/NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES (NIAID) (EBOLA); ALAMY (WATERMELON)

mental_floss

THIS IS OUR LAST ISSUE! 👏

We've had a wonderful 15-year run in print, and that's all because of you. It's time for *mental_floss* to go fully digital (you'll find new stories daily at mentalfloss.com), but before we go, we wanted to say a big thank you for reading.

IF YOU'RE A SUBSCRIBER, the remaining issues in your subscription will be fulfilled by *The Week*, our award-winning sister publication that takes the best in U.S. and international news, opinions, arts and ideas and distills it into a concise, engaging format. (If you're already a subscriber to *The Week*, your subscription will be extended by the appropriate number of issues.) You can expect to receive your first issue of *The Week* within the next few weeks, and we hope you enjoy it.

If you have any questions or would like a refund for unmailed issues remaining in your subscription, please email us at **mentalfloss@customersvc.com**.

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THE LAST WORD

Growing up, I had this poster of a power-strutting Einstein on my bedroom wall. Stretching floor to ceiling, it basically rendered him a peer of Andre the Giant. For a young nerd like me, he was just that: larger than life.

It was either fate or luck that, decades later, I got to work for the magazine that considered Einstein its spirit animal. And lately, as I've mentioned in this column before, I've been trying to get a better grasp on physics, so I've re-encountered our old pal. I was surprised to learn that he wasn't totally comfortable with math. He struggled with equations, working backward from the projections of his imagination to fill in the data. And though he figured out an awful lot about the inner workings of the universe, he didn't understand it all: He was known to preface his proclamations with cautious qualifiers like, "It seems to me ... "

Einstein was a genius, not a wizard. He had limits, yet he wasn't encumbered by them. Instead, he pushed toward their edges. He wasn't just an explainer—he was a quester. A *questioner*.

Questing has always been core to the *mental_floss* mission. We love nothing more than an adventure story; if it begins with a question, all the better. This annual issue is a celebration of what we don't know yet, of the delightful gaps in our understanding of the world. It's with that commitment to exploring the nooks and crannies of human knowledge that we undertook this issue's investigations: What did nudists have to do with the lava lamp? (Page 35.) What happens when someone is whisked into the Witness Protection Program? (Page 40.) Why are there pineapples on so many doormats??? (Page 41.) I also love this month's feature (page 50): It's the incredible story of what happened when one anthropologist decided he'd had enough of simply studying the world, and set out (with his family and a "tricolored cat") to sail around it—after first brushing up on how a boat works.

All of which is to say that this is the perfect issue to end our remarkable 15-year run in print. (More on this in the surrounding pages, with important details for subscribers right over there ←). I couldn't be prouder of what we've done here. And I'm looking forward to continuing to do it: Even as we shift gears into new mediums at mentalfloss.com and elsewhere, we won't stop questing. We know you won't, either.

jessanne

@jessanne

PS A quick thank you to the people who, for the last few years, helped me make this magazine happen: our incredible art director Lucy Quintanilla, big ideas guy Foster Kamer, and formidable whip-cracker Jen Doll. Winslow Taft has been our guiding artistic light for a decade, and my trusted partner in creative crime for five amazing years. Finally and foremost, I want to acknowledge someone whose name falls deep in the masthead, and who truly has been the foundation of this team: Lucas Reilly, a librarian-reared log-cabin millennial (and one of the most gifted storytellers I've ever worked with) who's never met an unsubstantiated fact (or substantiated bear) he couldn't stare down. I'm uniquely privileged to have had such talent at my disposal, and I count myself luckier still to have known you: our loyal reader.

ALAMY

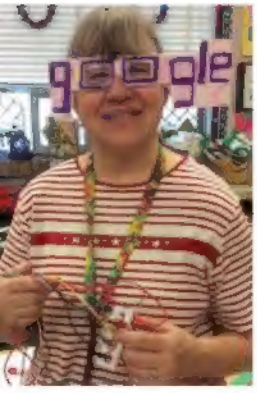
Can't travel the world saving hotels without the latest edition of *mental_floss*!

@anthonyhotels

[HE'S THE HOST OF *HOTEL IMPOSSIBLE* AND *FIVE-STAR SECRETS* ON THE TRAVEL CHANNEL.]

I think *mental_floss* is the only magazine I read every page of and don't just flip through. So much interesting stuff!

@hillarythecool



Loved the Innovative Teachers article in the current issue! I am thrilled to be one of the runners-up!

@teacherwaukegan

[WE'RE THRILLED TO HONOR YOU, JULIA AHERN!]

Letter of the Month

As an almost-70-year-old grandma, I had heard about *Portal* but never played it. Then I read "The Great Escape" [September/October 2016] and was fired up to find out more. Luckily, one of my grandsons lives with me. We found Let's Plays for both *Portal* and *Portal 2*. So awesome! After that, I went back and read the article again. Just an amazing game, and thank you for making me more *Portal*-versed!

—LORENA ROYCE

WE'RE BLUSHING

I've been meaning to tell you how much I love "The Index" in your table of contents, and the September/October 2016 issue's was awesome. Ponyboy, drowsy redheads, and uses for different kinds of urine? In what other publication would those things be together? Then I turned a few pages, and *wow*. The layout and colors of the ROY G. BIV Scatterbrain actually made me gasp, they were so stunning. Kudos.

—**Erin Welch**

REDHEADED WRONG

In the September/October 2016 issue, you ran a "fast fact" on how redheads need more anesthesia [Scatterbrain]. The medical community no longer believes this to be true. There was initially some evidence, but the head of research at Monash University has since disproved it.

—**Kendra Dowling**

Ed note: You're right. We're behind on our backlog of Anaesthesia and Intensive Care, *which ran "The Effect of Hair Colour on Anaesthetic Requirements and Recovery Time After Surgery" in 2012.*

SWEET REWARDS

I primed and painted houses that had been water-stained by the floods of Katrina in New Orleans. If we did a good job on any given day, our paint gang leader, Giorgio, would take us to a sno-ball stand, like the one featured in your September/October 2016 issue ["Try This!"]. They easily and wonderfully restored our hydration. They also gave us some epic brain freezes. Recently, I discovered an ice cream stand in the foothills of the Adirondacks, Lickety Split, that serves authentic New Orleans sno-balls. The owner imported the machine from the Crescent City. He and I bonded over the cones and New Orleans memories.

—**Tony Busch**

DOGS V. CATS

I saw the submitted photo of a cat lying on a stack of *mental_floss* magazines [Chatter, September/October 2016]. Totally disrespectful. My dog read the most recent issue with such focus and appreciation that her brain was full and she had to take a nap before she got to "1,006 Words." Loving every issue.

—**Monica Hoel (and Bonny)**

ONLINE AT MENTAL FLOSS

Why do I cry?

Spoiler: Humans are the only primates who do.

- The Alternate Endings of 28 Famous Movies
- 15 Books With Completely Different Movie Endings
- 6 Movies With Far More Depressing Alternate Endings
- The Scandalous History of Arlington National Cemetery

JOSH'S CORNER

MENTAL FLAW

We (correctly) congratulated Dawn Clevenger for being a runner-up in our Platypus Awards last issue. However, we misidentified her state, listing her as teaching in Beebe, AK, not Beebe, AR—for Arkansas, where she teaches fourth grade.

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Not all stories lead to writers hanging out in former anarchist communal homes, but **NICOLE PASULKA** did just that while reporting on the radical history of the ship *Phoenix of Hiroshima* (page 50). "After hearing so much about life on the *Phoenix*, both want to sail around the world and never live anywhere without doors that close," she says. Her work has appeared at *The Believer*, *Mother Jones*, and NPR.

HYACINTHE RIGAUD may be dead, but that didn't stop him from painting an exquisite portrait of Louis XIV's gams for our story on the politics of ballet (page 26). Born in 1659, Hiacinto Francisco Honorat Matas Pere-Martir Andreu Joan Rigau was the director of France's prestigious Académie Royale. You can find his work in the Louvre.

Writing about Louis XIV (page 26) gave **GRETCHEN SCHMID** a newfound respect for portrait artists. "The more I researched the more I realized that tiny details—the height of the man's heels, the musculature of his legs—often signify something important," she says. She is currently translating her first book, about *The Little Prince* author Antoine de Saint-Exupéry.

It wasn't just illustrator **BEN KIRCHNER** who was excited about this month's cover—his cat was too. "I found a small frog in the living room when I was drawing the cover," he says. "One of the cats had brought him in—he was very cute and sleepy a bit like the lizard I drew on the cover." His work has appeared in *The Washington Post*, *The New Yorker*, and, frequently, *mental floss*.

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COURTESY PASULKA; RIGAUD; SCHMID; KIRCHNER

A NOTE ABOUT THIS SCATTERBRAIN

The Scatterbrain section has been a staple of every issue of *mental floss* since 2001. To celebrate our final print edition, we dug through the archives and picked some of our favorite Scatterbrain stories. Enjoy!

THIS MONTH'S THEME

GREATEST HITS

HAVE YOU SEEN THIS VEGETABLE?

DON'T LET THE ANTICS of today's politicians fool you: They're hardly the first people in office to ignore the facts. Few places illustrate the point better than Oklahoma, where, in 2007, the House of Representatives voted 78 to 19 to make watermelon their state vegetable. State senator Don Barrington justified the vote by saying the juicy treat is a "member of the cucumber family," an airtight argument—except that, botanically speaking, cucumbers are fruits. But don't let that news dampen your mood. In Arkansas, the South Arkansas Vine Ripe Pink Tomato is both the state's official fruit *and* official vegetable. Compromise, right?

ALAMY (WATERMELON BEAVER)

SCATTERBRAIN

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GEORGE III: FASHION ICON >
SMOOTS: THE NEW YARDSTICK? >
IMPRESS THE LADIES ... WITH YAMS >

FUZZY ON THE FACTS

Early settlers of Quebec were just as pious as other pioneers, but these good Catholics had a tough time following the Catholic Church's Friday dietary restrictions, since there wasn't much edible fish around. There was no shortage of beaver meat, though. So in the 17th century, the Quebecois asked the church to declare the beaver a fish. After all, it lived in water and had a flat, scaly tail. Close enough, right? The church agreed, and the furry heathen got classified as a Catholic fish. Amazingly, the beaver isn't the only secular mammal that's religiously a fish. Venezuelans can dine on the capybara, a large semiaquatic rodent, during Lent for the same reason.

ONE CESSNA 150 AIRPLANE
LOTTO'S MOST FAMOUS MEAL TOOK HIM TWO YEARS TO EAT FROM 1978 TO 1980
SEVEN TELEVISION SETS
LOTTO'S SCONDTOWASFIRST DIAGNOSED AROUND AGE 9 WHEN HE STARTED MUNCHING ON PARTS OF THE FAMILY TELEVISION SET
18 BICYCLES
15 SHOPPING CARTS
TWO BEDS
SIX CHANDELIERS

DIET TIPS

MICHEL LOTITO, THE MAN WHO ATE A PLANE

YOU DON'T GET the nickname *Monsieur Mangetout*—Mr. Eat Everything—without earning it. Over the course of 40 years, Frenchman Michel Lotito ate an estimated nine tons of metal. In his youth, Lotito suffered from pica, an eating disorder in which people compulsively consume nonfood items such as dirt and plastic. But once he started experimenting with more dangerous items like nails and glass, he learned that the incredibly thick lining of his stomach and intestines allowed him to consume almost anything. Soon, Lotito turned his affliction into a career. By breaking up metal into small pieces and chugging mineral oil to lubricate his throat, he perfected his technique. For years, the Frenchman ate two pounds of metal each day. In 2007, Lotito died of natural causes unrelated to his eating habits. But before he passed away, he made sure he could eat a coffin.

RYAN NZANA

SURVEY SAYS!

WHO WORE IT BEST?

It's a regal fashion plate's worst nightmare: Someone else is wearing the same robes and breeches as you, and it looks better on him. We polled 100 people in New York City's Grand Central Terminal to see who rocked these royal duds.

Birth of the smoot

4 Units of Measurement Stranger Than Metric

Useful units for useless measurements

1

SMOOT

A smoot is exactly 5 feet, 7 inches—the height of MIT freshman Oliver Smoot in 1958 when he was used to measure the length of the Harvard Bridge between Boston and Cambridge. Smoot's fraternity brothers determined the bridge was exactly 364.4 smoots long, plus one ear.

2

HELEN

Helen of Troy's mug launched 1,000 ships, so artist and writer David Lance Goines developed the Helen system to measure beauty. To launch one ship, you'd need a millihelen. Meanwhile, a picohelen could inspire a man to "barbecue a couple of steaks and toss an inner tube into the pool."

3

THE BEARD SECOND

A beard second is the average length a man's beard grows in one second. However, experts disagree on what that length is. Some say 10 nanometers; others, including the Google calculator, say it's five.

4

SHEPPEY

A herd of sheep is scenic from afar, but the closer you get, the dirtier their wool looks. So writers Douglas Adams and John Lloyd gave us the sheppey: the distance you need to stay away from a flock of sheep so they resemble cute balls of fluff. One sheppey is about seven-eighths of a mile.

FAST FACT

President Nixon famously said, "I am not a crook," but few people remember where he said it: Disney World.

COURTESY MIT MUSEUM, SMOOT

4 Political Tricks for the Seemingly Unelectable

PLAY THE PET CARD

No politician has used the pet prop as effectively as Vito Battista. Running for a host of offices in New York from the 1950s to the 1980s, Battista made public appearances with a pair of monkeys. He even paraded around Manhattan with a camel claiming that just one more tax would break its back. His Ranger Rick tactics won him seats on the state assembly and city council, but failed to get him elected mayor the six times he ran.

BE A DOLL: MAKE ACTION FIGURES

Of all the unusual aspects of Jesse Ventura's 1998 Minnesota gubernatorial campaign perhaps the most successful was the introduction of an action figure in the former pro wrestler's likeness. Voters saw the doll in a campaign ad featuring Ventura battling "Evil Special Interest Man," and the spot helped propel him to victory. He managed to sell thousands of the figures, with most profits going to charity.

HACK THE SYSTEM

When Georgia politician Lester Maddox defied the 1964 Civil Rights Act, it not only boosted the segregationist's political career, it earned him an ignominious trademark. When Maddox refused to integrate his Atlanta chicken restaurant, his supporters wielded axes to turn away black customers. Using ax handles as his campaign symbol, Maddox defeated Jimmy Carter in the Democratic primary and won the Georgia governorship.

SNEAK IN WITH SNEAKERS

When Patty Murray protested education budget cuts in the 1980s, she didn't expect it would lead to a U.S. Senate seat. But when a Washington state legislator told her she couldn't make a difference because she was "just a mom in tennis shoes," the former preschool teacher used her footwear to rise from her local school board to national office. The shoe symbolism was so effective that she decorated her Senate office with sneaks.

SCIENCE SAYS

SEPARATED AT BIRTH?

WINSTON CHURCHILL	MAE WEST
Dropped bombshells	Was a bombshell
Brunette (before he went bald)	Brunette (before she dyed her hair blond)
Favored dry martinis (His recipe: "Glance at the vermouth bottle briefly while pouring the juniper distillate freely.")	Favored dry martinis (As she said in her movie *Every Day's a Holiday*, "You ought to get out of those wet clothes and into a dry martini.")
Admired horses ("There is something about the outside of a horse that is good for the inside of a man.")	Once guest-starred on *Mr. Ed*

ANDY MILLER/TROY ADAMS/HULTON ARCHIVE/WEST PAGODA

TOURIST GOLD

THE 14-KARAT CLIFFHANGER

In Burma, a bad hair day could cause this religious artifact to tumble.

IF YOU'RE LOOKING for a world-class balancing act, the Kyaiktiyo Pagoda puts on quite a show. Perched on the edge of a mountain in southern Burma, the so-called Golden Rock is said to be held in place by a single hair of the Buddha. The thousands of pilgrims who visit the religious site each year show their respect and devotion by applying pieces of gold leaf to the gravity-defying granite boulder. With any luck, the act will add a little balance to their lives.

THE LINEUP

4 THINGS THAT HAVEN'T DIED OUT

Yet.

	WHAT WAS IT?	WHERE IS IT NOW?	PROXIMITY TO DEATH?	REASON TO KEEP IT ALIVE
SHAKERS	An 18th-century offshoot of the Quakers. The communalistic religious community believed in celibacy and held weekly dances to "shake" out the lust.	New members were last admitted in 1957. Today, there are three surviving Shakers, all of whom live in Maine. At their age, though, there's probably not a whole lot of shakin' going on.	4½ NAILS IN THE COFFIN Unless woodworking and abstinence become popular pastimes again, they're in trouble. But who knows? Knitting came back.	Shakers invented the circular saw, the flat broom, and the clothespin. With any luck, the next generation will handcraft a line of simple yet functional jet packs!
SMALLPOX	Smallpox caused hundreds of millions of deaths during the 20th century. Worse still, it managed to infect—but not kill—a young Josef Stalin.	After being eradicated from humans in 1980, the virus lives on only in cultures stored in U.S. and Russian laboratories.	2½ NAILS IN THE COFFIN Viral samples can stay frozen for decades.	Should the disease somehow enter the general population again, it may be helpful in creating new vaccines.
THE IVORY-BILLED WOODPECKER	The cousin of the pileated woodpecker that once thrived throughout the American South. It was so beautiful, it was called the Lord God Bird.	The bird was believed extinct for several decades due to deforestation. However, at least one male was sighted in 2004 and 2005 in Arkansas.	4½ NAILS IN THE COFFIN We're not biologists, but we'd be surprised if a lone male woodpecker managed to produce offspring.	Noah would've wanted it that way.
PUBLIC SCHOOL PADDLING	The biblically endorsed way not to spoil a child.	Wooden paddle spankings are still legal in 19 American states. (For the record, you're most likely to be paddled in Alabama.)	1 NAIL IN THE COFFIN In 2003, an average of 1,350 school paddlings occurred nationwide per day.	Studies have shown it's completely ineffective for child-rearing, though it might be good practice for when little Jimmy pledges Kappa Sigma Rho.

RYAN NZANA

TEACHER'S PEST

J.S. Bach: Well-Tempered Clavier, Ill-tempered jerk

JOHANN SEBASTIAN BACH was more than a famous composer. He was also a famous thrower of tantrums—something one student in Leipzig found out the hard way. After accosting Bach for insulting his bassoon playing and calling the professor a "dirty dog," Bach promptly retaliated by drawing his sword. (Apparently, the 18th century was an era during which music teachers were expected to carry swords.) He then proceeded to call the student a *zippel fagottist* (German for "nanny-goat bassoonist"). Other students intervened to stop an out-and-out duel, but the composer didn't exactly apologize for his actions. When told that he shouldn't attack his students, a peeved Bach reportedly took a walk to calm down. Specifically, he hiked 230 miles to attend an organ concert.

ANDY MILLER (BACH); ALAMY (REEK SUNDAY)

HOLIDAY? CELEBRATE!

Two International Religious Events We Totally Endorse

REEK SUNDAY

Legend has it that in 441, Saint Patrick climbed a mountain and fasted for 40 days, after which he drove the snakes (a euphemism for pagan druids) out of Ireland. Today that peak—Croagh Patrick—is home of an annual pilgrimage on the last Sunday of July, when about 30,000 people climb the summit. Many fast for three days before embarking barefoot or on their knees. This sounds only slightly painful until you learn that Croagh Patrick is made of loose shale that basically turns the slope into a pile of razor blades. Not surprisingly, the sight of half-starved worshippers shedding blood up the side of a major tourist attraction is of some concern to Ireland's tourism board.

YAM HARVEST FESTIVAL

On the Trobriand Islands of Papua New Guinea, a man's power in the tribe is determined by the size of his yams (yes, actual yams, which can reach nine to 12 feet long). The best yams are dressed in costumes and revered as ancestors. While the men are busy comparing their yams, the women prepare to ambush their favorite farmers. On harvest day Trobriand's women, even the married ones, are allowed to have sex with any man they choose. They capture their man of choice and drag him to the yam fields. The men don't resist because Trobrianders believe copulating among the yams fertilizes the soil. No wonder anthropologists call it "The Islands of Love."

FAST FACT

A monkey trained to hold a cane was originally slated to play Yoda

THE BEST PLACE IN THE WORLD TO

See the Light(s)!

Some folks call it the "celestial disco." Others know it as the northern lights. No matter what you call the aurora borealis—that swirling display of colors in the northernmost parts of the planet—the important thing to know is that it's as elusive as it is beautiful.

The phenomenon is a product of particles from the sun's surface hitting electrons in the Earth's atmosphere. And the farther north you go, and the less light pollution the location has, the more likely you are to see the aurora borealis, especially during the winter. Rovaniemi, Finland, is around 500 miles north of Helsinki, so if you're part of the throng of tourists headed up there to see the lights, the odds are in your favor. One problem? The lights often come out late at night. That's why the town's Arctic SnowHotel—one of the largest "ice hotels" in Finland, with rooms built into what's essentially a giant igloo—has now hired an aurora borealis spotter to work for them. The spotter's shift starts at 11 p.m. and ends at 6:30 a.m., and the stargazer raises an alarm to wake guests if the lights make an appearance. It's the ultimate five-star convenience for one of the world's greatest sights.

In the Southern Hemisphere, the lights are called aurora australis.

LIVE SMARTER
THE ARCTIC SNOWHOTEL
Rovaniemi, Finland
PRICE:
€130 PER PERSON, PER NIGHT
SEASON:
DECEMBER 1 - MARCH 31
arcticsnowhotel.fi

The drink should be served in a pousse-café glass, which is like a cordial glass—tall, slender, with a wide mouth that allows the ingredients to stay layered as you sip through them

Duke Ellington wrote music for only two shows on Broadway, and one of them was titled *Pousse-Café* (It had only three performances.)

TRY THIS!

POUSSE-CAFÉ

This peacocking cocktail packs a potent punch.

BY **FOSTER KAMER**

PHOTOGRAPHY BY **CARY NORTON**

The drink you see before you has been derided by cocktail bible *Punch* as "the universal emblem of terrible customers," described by famed New York bartender Eben Klemm as the "dorkiest drink ever," and called "stupid" by cocktail writer David Wondrich. Yet the pousse-café remains an object of fascination.

It dates back to the mid-1800s, when it started appearing in cocktail books as a kind of post-coffee digestif (*pousse-café* translates literally to "push coffee," and less literally to "coffee chaser"). It can be served in any number of variations, but has a simple construction premise: booze, layered on booze, layered on booze. This is done by selecting liquors of different weights, and pouring them slowly over a bar spoon and into a glass—heaviest to lightest—one on top of another, with the most delicate hand possible.

What's so tough about making a great pousse-café, then? Well, for one thing, it's time-intensive. For another, how can you make a cocktail that tastes as great as this looks? Some bartenders mix milk punch, green Chartreuse, pamplemousse liqueur, grenadine, and high-proof rum, while other recipes call for crème liqueurs and brandy. Assuming you're not running a speakeasy, you can always try your local cocktail den, but do yourself (and the bartenders) a favor, and make sure they know how to make it first. Then sip slowly, and tip well.

This pousse-café recipe includes (bottom to top) strawberry syrup, banana liqueur, Campari, yellow Chartreuse, gin, and grapefruit bitters, and comes to us via Eric Bennett at Saturn Birmingham in Birmingham, Alabama.

LIVE SMARTER

PUSTEFIX IS AN ABBREVIATION OF THE GERMAN WORDS FOR "READY TO BLOW."
THE COLORFUL PLASTIC FIFE IS IRONIC—A SYMBOL OF ADULT SERIOUSNESS AND FREUDIAN BOOKISHNESS TURNED INTO A CHILD'S TOY. IT'S ALSO RESOLUTELY LO-FI. THERE ARE PLENTY OF BATTERY POWERED BLOWING MACHINES, BUT THIS ONE IS ALL BREATH.

THE LITTLE THINGS

The Pustefix Bubble Pipe

Six key moments in the life of this German curio

BY KYLE CHAYKA

PHOTOGRAPHY BY ROB CULPEPPER

1

THE ART OF BUBBLES

Rumor has it that bubble-blowing first showed up on a (likely fake) ancient Etruscan vase. But bubble pipes were pictured in 17th-century Dutch paintings, like those of Frans Hals, as a children's toy. In 1895, an Ohio newspaper described bubble-blowing as "an especial fad" for children as well as an "exceedingly diverting" winter sport for adults.

2

PATENTS AND PIPE DREAMS

In the 20th century, bubble toys went into mass production and quickly became more elaborate. A 1918 patent shows a design by J.L. Gilchrist for a manufactured pipe that "may be disassembled and cleaned and quickly reassembled by an unskilled person."

3

DAUGHTER OF NECESSITY

In 1948 in post-war West Germany, a chemist named Rolf Hein formulated detergents, using them to barter for food with local farmers. The formula also happened to make pitch-perfect soap bubbles.

4

FOAMY PROTOTYPE

As the economy recovered, Hein starting selling the soap in a bubble-blowing kit, composed of an aluminum canister, cork top, and a spiral blowing ring—familiar to anyone who has blown a bubble in the past few decades. The aluminum containers had problems, however: The soap corroded the metal, and the cork leaked.

5

99 LUFTBUBBLES

In the 1960s, Hein's company, Pustefix, switched all its materials to brightly colored plastic. In the 1970s, the falling birthrate in Germany caused the company to look farther afield for markets—and for creative toy forms, like swords, trumpets, and, yes, pipes. Now the company's products can be found everywhere from the United States to South Korea and Japan.

6

FOREVER BLOWING BUBBLES

In art, bubbles were often included in memento mori paintings meant to memorialize the deceased. The bubbles represented the ephemeral nature of life: They could pop at any moment. Thankfully, the Pustefix bubble pipe can always produce more.

LEFT BRAIN | RIGHT BRAIN

Power Moves

Instead of an iron fist, King Louis XIV ruled with his dancing shoes.

BY **GRETCHEN SCHMID**
ILLUSTRATION BY **HYACINTHE RIGAUD**

IN 1692, a young French aristocrat visiting King Louis XIV's royal court was asked if he knew how to dance. The cocky aristocrat, who went by Montbron, replied with characteristic overconfidence, gloating enough to attract the attention of other courtiers. Rookie mistake. It wasn't long before the room of nobles asked him to prove it.

It was a truth universally acknowledged that a man pining for a political career in 17th-century France needed a dance teacher. The ability to dance was both a social nicety and a political necessity, the birthmark of an aristocratic upbringing. "Good breeding demands that pleasing and easy manner which can only be gained by dancing," the famed dance teacher Pierre Rameau wrote in 1725. Dancing badly in court wasn't just humiliating, it was also a potential career killer—and Montbron was all talk and no game.

The aristocrat took to the floor and immediately lost his balance. The audience doubled over in laughter. Embarrassed, he tried deflecting attention from his legs with "affected attitudes," waving his arms and making faces. The move backfired. Everyone laughed

louder—including the most important man in the room, King Louis XIV.

"There were reportedly more than two hundred dancing schools in Paris in the 1660s, all devoted to training young noblemen to avoid similar dread breaches of etiquette," writes Jennifer Homans in *Apollo's Angels: A History of Ballet.* The young aristocrat didn't show his face in court for a long time after his grand flop.

King Louis XIV, a lifelong ballet dancer, would have it no other way. To him, ballet was more than an art. It was the political currency that kept his country together.

WHEN LOUIS XIV WAS 10, he was chased out of France by a band of angry aristocrats who wanted to keep royal powers in check. He had sat atop the throne for four years, but the country was run by adult advisors. The vacuum of power was a symptom of a series of aristocratic uprisings called Frondes.

At first, the rebels of the Fronde didn't want to overthrow the government; they simply wanted to avoid absolute rule by the royals. The government had raised taxes to recover funds from the Thirty Years' War, and the nobility was opposed to the increase. But when civil war erupted, some factions tried taking control of the crown. By the time the young king returned in 1652 at age 14, his worldview had changed. He returned to Paris forever skeptical of his underlings.

For the rest of his life, King Louis would be hellbent on squashing the nobility's thirst for power. He believed that God had granted him direct authority and he fashioned himself after Apollo, the Greek god of the sun. Louis called himself the "Sun King"—the star at the center of France's universe—and ensured everybody knew it. He formed his own army and stripped aristocrats of their former military duties. As an absolute monarch, he declared: "I am the state."

Louis did everything in his power to elevate his status. He practiced fencing and vaulting, and trained for hours daily with famed dancing master Pierre Beauchamp. It was more than mere exercise: According to the period's political theory, the state of France was literally embodied by its ruler. Sculpting his muscles and ensuring that his body was perfectly developed and proportioned was a way to demonstrate he was the ultimate source of power, ruling by divine right.

To ensure that the aristocracy didn't rise up and attempt to seize power from him again, Louis kept the patricians at Versailles within his sights—and perpetually busy. He turned Versailles into a gilded prison, calling in nobles from their faraway estates and forcing them to stay at court, where he could keep a close eye on them.

In a way, life at Versailles—which Louis had built into a palace—took the form of an intricately choreographed dance. Noblemen and women were restricted as to where they could stand, how they were allowed to enter or exit a room, and what type of chair they could sit on. The house was divided into elaborate wings, and inhabitants moved between them via sedan chairs, which functioned as indoor taxicabs. (Only the royal family had their own taxi-chairs. Everybody else had to flag them down.)

Louis XIV's theory was that nobles couldn't overthrow the government if they were too busy attending to trifling matters of etiquette. If nobles spent all of their energy trying to maintain their status, they wouldn't have time or ability to rise up against the monarchy. And dance was one of the many ways Louis was able to keep the highborn in their place.

Dance had been intricately bound up with court etiquette for decades. But under Louis's watch, it became one of the most important social functions of the court. Nobles learned about two to four new ballroom dances a year, performing the social dances before dinner. "At Louis's court, a courtier probably had to keep some twelve dances at the ready, a considerable feat of memory in view of their diversity and complexity," writes Wendy Hilton in *Dance and Music of Court and Theater.*

Louis XIV's stage debut at age 15, *Le Ballet de la Nuit*, was a perfect example of the power games he would come to play. The performance, which consisted of 43 miniballets, lasted 12 hours and stretched overnight into dawn, with an elaborate set including chariots crossing the skies,

Left: Hyacinthe Rigaud's portrait of King Louis XIV. Above: The king costumed as his preferred celestial body—the sun—in 1653's *Le Ballet de la Nuit*.

winged horses dipping in and out of clouds, and monsters rising from waves. At the end of the performance, the Sun (played by Louis, encrusted in jewels and topped with ostrich feathers) comes to vanquish the Night. Louis would repeat the performance six more times over one month.

As Louis grew older, he staged extravagant, lengthy ballets—called *ballets de cour*—as masculine displays of athleticism and virility. (Women weren't allowed to dance; feminine roles were usually performed by cross-dressing men.) The king, of course, danced the lead roles dressed in intricate costumes, gilded with expensive jewels. His favorite getup? Roman emperor.

It was a far cry from royal dances of the past. When ballet first emerged in Italy in the 15th century, it resembled a staged display of slow, elegant walking. Catherine de Medici brought the art form to France when she married King Henri II in 1533, but Louis XIV pushed the craft to become highly technical and distinctively French.

The *ballets de cour* were an extension of everyday court etiquette, all designed to keep the aristocracy perpetually nervous and literally on their toes. Pushing ballet forward was more than a power move at home—it was a way to show the rest of Europe that France was the center of high culture. Louis wanted world leaders to admire France's artistic achievements as much as they admired the country's military might.

And it worked. Royal French fashion, etiquette, and taste became extremely popular in the courts of other countries. The king of Sweden even sent an ambassador to France just to observe artistic developments and report back.

BALLET WAS DESIGNED TO KEEP ARISTOCRATS NERVOUS, LITERALLY ON THEIR TOES.

THANKS TO HIS ENORMOUS APPETITE, Louis XIV's dancing career didn't last. His sister-in-law, the Princess Palatine, wrote of a meal in which the king wolfed down "four bowls of different soups, a pheasant, a partridge, a large bowl of salad, two slices of ham, a dish of mutton, and a plate of pastries, finished with fruit and boiled eggs." According to ballet myth, when the overweight king couldn't execute the complicated entrechat quatre jump—a move that requires a dancer to leap and beat his legs back and forth twice before landing—his dancing master invented a one-and-a-half-beat jump as a cheat. Today, the jump is called the royale.

In 1701, Louis stood in for a new royal portrait. The painter, Hyacinthe Rigaud, had a talent for rendering faces in exact, photographic detail—a skill that had previously caught the eye of various aristocrats. In fact, Rigaud was so popular among aristocrats that he often didn't have the time to finish his paintings. Like a 17th-century James Patterson, he had to hire a stable of aides. Fueled by hot chocolate and gimblette cookies, they were in charge of filling in background details.

Over the years, Rigaud had catalogued practically all the French nobility, and his work won praise because it depicted nobles as they wanted to be seen: grandiose, powerful, and wealthy. Louis, who was still determined to elevate his status, knew that Rigaud was the perfect portraitist for the job.

There's a lot to giggle about in Rigaud's final product: the French king's disdainful expression, the glam-metal hair, his arm perched saucily on his hip, the heeled shoes, with jeweled buckles to boot! But to Louis, the painting commanded respect. When Rigaud painted his subject, the 63-year-old king was a stout 5 feet, 4 inches. Rigaud portrayed him in a flattering light, tweaking the perspective so the viewer gazed up at the king, creating the appearance of a taller man—an effect heightened by mounting the portrait on a wall. Louis's chunky dancing heels added a few inches of height, while coronation robes and ermine fur concealed his large body.

With the exception of his legs.

Louis was proud of his legs. Sculpted from years of ballet, they were signs of a cultured and athletic past, and while Louis had relinquished his danseur star status decades earlier, he never let his courtiers forget the power that dance held in his government. Rigaud's portrait was an intimidating display of the king's strength and wealth, and whenever Louis was away from court, nobles were forbidden from turning their backs to the painting.

By that point, showing off his gams was the king's way of showing off his legacy as a trailblazer. By the time Louis hung his portrait on the wall, he'd created the Royal Academy of Dance, precursor to the prestigious Paris Opera, been instrumental in codifying the five main foot positions used in ballet today, and helped make French the art form's official language (consider terms like *pirouette* and *plié*). Were it not for Louis XIV, ballet might forever have remained a social dinner dance for bored Italian aristocrats.

If he were still alive, Louis would be appalled by the modern stereotypes of ballet as dainty. Nothing could be further from the truth: Ballet was a powerful political tool, a means of maintaining a country's stability and keeping the status quo. It's a stark reminder of how much the power games of politics have changed. While modern politicians polish their reputations with slick social media managers and a pinch of pandering, Louis did it with art.

Maybe it's time for us to bring that tactic back: Can you imagine this year's presidential candidates debating immigration policy while performing a pas de deux in silken white tights? ❀

GRAMMAR TIME

THE LANGUAGE DETECTIVES

When criminals fail to leave fingerprints, investigators turn to other clues.

BY **ARIKA OKRENT**

ON A DALLAS-BOUND FLIGHT IN 1979, Roger Shuy, a professor of linguistics at Georgetown University, struck up a conversation about his work with a lawyer sitting next to him. Shuy had spent a couple of decades studying dialect differences, the effects of context on meaning, and how social norms shape language. He explained that, essentially, his job was to tape-record how people talked. "Wow," the lawyer said, "my partner has a case involving tape-recorded evidence. Would you be willing to look at the tapes?"

Shuy agreed—and became an expert witness in a case of attempted murder-for-hire. A Texas oil millionaire was accused of arranging to kill his estranged wife and the judge overseeing his divorce proceedings. While the oilman claimed he had hired one of his employees to tail his wife and collect evidence of an affair, the employee told police he had been asked to find someone to *kill* the pair.

Shuy analyzed recorded conversations, and found that the oilman's answers of "good" and "all right" to suggestions about wanting people dead—crucial evidence for the prosecution—had strange intonation and timing. Shuy showed, with the help of an FBI video, that the "good" and "all right" weren't responses to his employee at all, but discourse fillers related to a different thread of the conversation. The oilman was acquitted. The experience led Shuy into a career as a forensic linguist.

Language has always been an important part of law. But it wasn't until the 1980s that forensic linguistics came into its own as a profession. Before that, linguists occasionally offered testimony about the meaning of slang terms, voice identification, and inconsistencies in confessions or police statements. But through the 1980s and 1990s, as technology made recorded language a bigger part of crime investigation, language experts became a staple in the courtroom.

It's easy to assume that if words are caught on tape, the evidence is clearly there. But in order to determine

whether a bribe has been offered or accepted, whether an "uh-huh" means yes, whether a speech act counts as a threat, whether a suspect has agreed to a search, and even which speaker is talking at any point on a recording, careful analysis of language and context is required.

In one case where an insurance company blamed a plane crash on a faulty engine that released toxic gas and incapacitated the pilot, Shuy looked at sentence structure, pause fillers, topic relevance, and pronunciation in the pilot's speech on the flight recorder. He found that there was no chemical-induced disorientation before the crash. In another case, Shuy used the relationship between sentence and syllable structure to show that a phrase on a scratchy tape transcribed as "I would take a bribe, wouldn't you?" was actually "I wouldn't take a bribe, would you?"

CRIMINALS HAVE BEEN IDENTIFIED THROUGH LINGUISTIC PATTERNS IN TEXT MESSAGES.

The field doesn't revolve around recordings; forensic linguists can study any form of language. Criminals have been identified through linguistic patterns in text messages and letters they have written. In one famous investigation, a single phrase in a low-tech, pencil-scrawled ransom note cracked the case.

Shuy was called in to examine a note that had been left on the doorstep of an Illinois home where a girl had disappeared. It instructed the family to stuff $10,000 into a diaper bag, then: "Put it in the green trash kan on the devil strip at corner of 18th and Carlson. Don't bring anybody along. No kops!! Come alone! I'll be watching you all the time. Anyone with you, deal is off and dautter is dead!!!"

Shuy determined that, despite the misspellings, the suspect was probably well-educated. *Kan* and *dautter* are not the kind of misspellings uneducated people tend to make, and the letter was otherwise well punctuated and spelled difficult words like *diaper* correctly. The clumsier "mistakes" were probably intended to deliberately mislead.

The more important conclusion had to do with the term *devil strip*—a moniker for the strip of grass between the sidewalk and the street, otherwise known as a parkway, tree lawn, verge, or berm. Shuy knew it was the term used in Akron, Ohio, because that's where he was born and raised. But he also knew it was exclusive to Akron because he was a linguist who had studied American dialects. He asked the Illinois police if they had any well-educated suspects from Akron. One of them fit that profile, and when confronted with the evidence, he confessed. He tried to mislead with language—but in the end, with the help of forensic linguistics, it was his own words that gave him away. ❁

ILLUSTRATION BY JOHN PATRICK THOMAS

Coming of Age

Joining the AARP sounds like a hoot compared with getting older in years past.

BY **A.J. JACOBS**

IN THE GOOD OLD DAYS, it wasn't so good to be old.

Granted, some ancient traditions urge us to venerate the elderly. The Bible, for instance, commands us to "stand up before the gray-headed," which is good news for Anderson Cooper and Lady Gaga.

But in practice, disdain for senior citizens was more common than respect. The Greek philosopher Aristotle was a notorious elder basher. According to the book *Old Age in the Roman World*, Aristotle described senior citizens as "overly pessimistic, distrustful, malicious, suspicious, and small-minded." (Aristotle lived to be 62, so he presumably was only mildly malicious at the end of his life.)

OLD PEOPLE WERE PUT IN WORKHOUSES, WHERE THEY LABORED FOR NO PAY.

An old man was bad enough, but a woman of a certain age? Her very existence was dangerous. According to the cutting-edge science of the medieval times, women's menstrual fluid was poisonous. Which meant that menopausal women—who supposedly retained their flow in their bodies—were walking Chernobyls. Just by existing, they could "cause grass to dry up, fruit to wither on the vine, and trees to die. ... Dogs would become rabid and mirrors would crack by her mere presence," according to *A History of Old Age*, edited by Pat Thane.

Old age was not a time of relaxation and canasta. In 19th-century England, old people didn't get to retire (well, at least old folks who weren't aristocrats). Many were put in workhouses, where they labored for no pay. Old people in ill-fitting striped clothing were made to crush horse bones for fertilizer or unravel old rope to recover the threads. You were essentially put in jail for outstaying your welcome.

That's slightly preferable to the treatment the elderly got in other cultures. They were—how to put this gently?—*relieved of the burden of living*. The practice even has a name: senicide. In ancient Sardinia, sons sacrificed fathers over the age of 70 to the god Cronus. In parts of India, elderly people were forced to take part in a ritual called *thalaikoothal*. They were given an oil bath, then encouraged to drink an excess of coconut water, which can cause kidney failure and eventual death.

So it's understandable that our ancestors did what they could to prevent aging. There was plenty of advice here. The Greek physician Galen, for instance, suggested that old people drink donkey milk, or even human breast milk. He also recommended they go horseback riding, avoid eating cheese and snails, and take regular baths.

Knowing the old were endangered, some lawmakers tried to protect them. In ancient Delphi, for instance, if you didn't care well for your parents, you were put in irons and imprisoned.

Occasionally, being old did come with perks, some even better than half-price movie tickets. In Venice, priests over 60 were not required to whip themselves any longer. In medieval England, men of a certain age were exempt from military service, paying taxes, and—best of all—jury duty. Even today, younger adults of a tribe in Fiji pre-chew food for old people who have lost their teeth. That's the life! ❀

ILLUSTRATION BY [illegible] MELANSON

SPYCRAFT

HOW THE CIA RESCUED MODERN ART

Abstract Expressionism was a fringe movement, until the feds stepped in.

BY MEG ROBBINS

IN 1946, the U.S. State Department organized an international exhibition called *Advancing American Art* that showcased paintings by artists such as John Marin, Ben Shahn, and Georgia O'Keeffe. Not everyone was a fan. The paintings weren't abstract—portraits, still lifes, nothing that would be out of place at an exhibit of mid-century work today—but they were "modern." The tour was cut short amid criticism from the American Artists Professional League.

This news delighted top government officials. President Truman called the works "the vaporings of half-baked lazy people," adding, "If that's art, then I'm a Hottentot." Other officials thought the exhibit was a ruse: House Appropriations Committee Chairman John Taber complained to the secretary of state that the paintings were made by Communists to "establish ill will" toward the United States.

MODERN ART EMBODIED THE AMERICAN IDEAL OF FREEDOM, THE LIBERTY TO EXPRESS IDEAS.

The CIA disagreed. The newly formed agency didn't see modern art as anti-American; it saw the movement as a powerful Cold War weapon that could stoke patriotism at home and win the sympathies of left-wing intellectuals abroad. Unlike Soviet art, which was tightly controlled by the government, modernism embodied the American ideal of freedom, the liberty to express wild ideas. To the CIA, Abstract Expressionism was proof that American artists enjoyed the widest range of creative latitude.

"Moscow in those days was very vicious in its denunciation of any kind of nonconformity to its own very rigid patterns," Donald Jameson, a former case officer, told the *Independent*. "Anything they criticized that much and that heavy-handedly was worth support one way or another."

But the CIA knew that many Americans hated modern art too. People found it ugly, and many recoiled at the splotchy trademarks of Abstract Expressionism. So the CIA schemed ways to combat domestic resentment.

In 1950, the agency created the Congress for Cultural Freedom, or CCF, a secret multinational group of anti-communist intellectuals. Their job? To sponsor exhibits and publish magazines that covered abstract art positively. The CIA asked wealthy people to establish foundations so the government could pipeline funds. For example, when Britain's Tate Gallery wanted to display the CCF's *The New American Painting* exhibit, the millionaire Julius Fleischmann "paid" for it.

By the late 1950s, critical opinion had turned positive without the public or any artists noticing the government's involvement. It's hard to measure how much influence the CIA had; bigwigs like Fleischmann probably would have supported modern art without the CIA's prodding. But the agency certainly boosted the style's profile, helping make Abstract Expressionism America's first major international art movement. ❁

ILLUSTRATION BY BILL PETRO

BIG QUESTIONS

Does alien life exist? Is there a God? Who invented the wheel? While everybody was busy asking those questions, we were contemplating the *true* mysteries of existence.

(WE FOUND THE ANSWERS, TOO!)

BY SAMUEL ANDERSON MATT LOTT, ALEX OSSOLA, LUCAS REILLY MEG ROBBINS, AND JAKE ROSSEN

ILLUSTRATIONS BY ELLEN SURREY, ANDY SMITH AND STEVEN TWIGG

WHO INVENTED THE LAVA LAMP?

In a word, nudists. The idea struck Edward Craven Walker, a British World War II veteran and travel agency owner, while sitting in a pub. There he spotted a glass cocktail shaker, filled with water and oil, that was being used as an egg timer. When it was heated, globs of oil would rise in the time it took to hard-boil an egg. Walker wanted to twist the concept into a lamp: He spent the next 10 years tinkering with water, oil, wax, dye, and chemicals from fire extinguishers and cleaning supplies.

Walker bankrolled the project by making nudist films. One movie, called *Travelling Light*, featured a naked woman performing ballet underwater. It earned so much money that it allowed Walker to open one of Britain's largest nudist resorts. It also made his invention, the "Astro Lamp," financially possible. In 1963, the first lava lamp hit the market. By the mid-1970s, Walker was selling seven million a year.

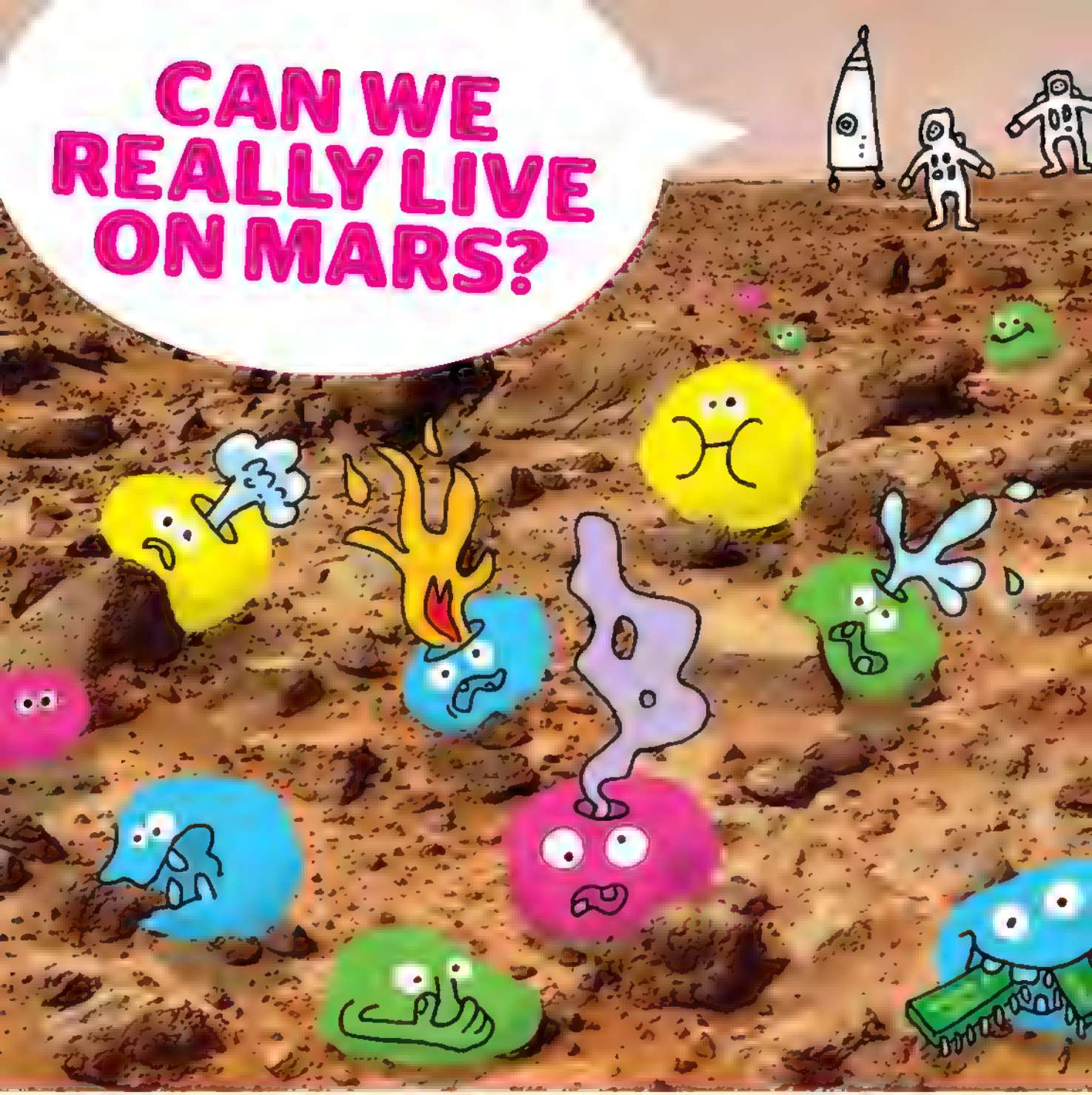
"It's like the cycle of life," he told the *Daily Telegraph*. "It grows, breaks up, falls down, and then starts all over again. And besides, the shapes are sexy." About 26 years later, he sold his lava lamp business—interrupting a stay at a nudist camp to make the deal. —M.R.

Could we power the world with lightning?

No. Lightning can send Marty McFly back to the future, but its power ends there—it's too short and unpredictable to deliver any meaningful energy to the grid. "The amount of energy from a lightning bolt would be worth only about a nickel," says MIT's James Kirtley. That, of course, hasn't stopped people from trying. In the 1960s, the United States and France tried harnessing lightning with rockets, and in 2007 Alternative Energy Holdings built a "lightning farm" outside of Houston. (It flopped.) One highlight: In 2013, scientists at the University of Southampton partially charged a Nokia cell phone with lightning. Baby steps. —M.R.

If we harnessed every drop of energy from the world's lightning for a year it would last only nine days.

CAN WE REALLY LIVE ON MARS?



Yes, as long as we bring the right microorganisms along for the ride!

HOW WOULD WE EAT?

Astronauts would grow algae. "These organisms can be nutritious; they just don't taste good," says John Hogan, a scientist at NASA's Ames Research Center. So scientists are finding ways to make the green stuff tastier, removing genes that make putrid smells. (The project is nicknamed "Sweet Algae.") Bonus: Algae can also help fill spacecraft with oxygen.

WHAT ABOUT I.T. REPAIRS?

There's no Genius Bar on the Red Planet, so scientists are toying with "synthetically enhanced microbes" to help break down old computer chips. These microbes can be trained to strip specific metals from defunct chips. Then Mars dwellers can use these microbes as "bio-ink" in special 3-D printers to print out new, functional computer chips.

HOW WOULD WE FUEL UP?

Algae to the rescue again! NASA scientists think we could use compounds that are abundant on the planet—namely, carbon dioxide and hydrogen—to grow algae. Those organisms will then produce oil-rich lipids that can be used as fuel.

HOW WOULD WE BREATHE?

The soil on Mars could make for another kind of blastoff. One of its key components, perchlorate, can cause explosions. But *Azospira suillum strain PS* plays bomb squad. The bacteria break down perchlorate into two harmless components, chlorite and oxygen. A 2013 study found that if you give the bacteria just one hour to play in the dirt, they create enough oxygen to sustain a human all day.

ANDY SMITH (MARS); STEVEN TWIGG (CANDY); ELLEN SURREY (SHIPS)

What's the best way to stop an invasive species?

There are plenty of tricks to eliminating pests, but you've got to hand it to Australia for harnessing the power of herpes. Yep: herpes. Invasive carp are a problem down under. They're not natural to the region, they harm native fish populations, they're destroying biodiversity, and they cost the country's economy $500 million a year. To stop the carpocalypse, the government plans to release herpes—specifically *cyprinid herpesvirus 3*, a form that harms only carp and leaves other critters unharmed—into the country's waterways by late 2017. —L.R.

WHAT ABOUT NEW CLOTHES?

Researchers at Ames recently engineered the bacterium *Bacillus subtilis* to produce several different kinds of proteins. A slow-growing community of these microorganisms could help astronauts grow useful materials, such as clothes, vaccines, and even concrete. The best part? The microorganisms could feed off human urine. —A.O.

What was history's best "making lemonade out of lemons" moment?

Egypt and Israel had a saltier relationship in the mid-20th century than they do now. In 1967, war broke out between the two. Egypt tried to cripple the Israeli economy by blockading the Suez Canal with sunken ships, mines, and debris—trapping 14 unlucky foreign cargo ships in the canal for eight years.

Marooned on the canal's Great Bitter Lake, the ships—British, French, American, German, Swedish, Bulgarian, Polish, and Czechoslovakian—"clustered in the middle of the lake like a wagon train awaiting an Indian attack," *The New York Times* reported. Israel controlled the east bank; Egypt, the west, so sailors watched helplessly as the countries exchanged gunfire over their heads. With nowhere to go, they set aside their homelands' differences, moored together, and formed an unofficial micronation.

Each vessel adopted a duty to keep the "country" running smoothly. The Polish freighter functioned as a post office and made custom stamps. The Brits hosted soccer matches. One ship served as a hospital; another, a movie theater. On Sundays, the German *Nordwind* had "church" services. "We call it church," Captain Paul Wall told the *L.A. Times* in 1969. "But actually it is more of a beer party."[1]

It was like summer camp. The sailors dubbed themselves the "Great Bitter Lake Association" and made a club tie. They passed time with sailing races. They held steak cookouts, using 35-gallon drums as stoves. During the 1968 Tokyo Olympics, they hosted the "Bitter Lake Mini-Olympics," with weight lifting, high jumping, and, of course, swimming. One winter, they installed a floating Christmas tree and lowered a piano onto a boat, which puttered to each ship to give a concert. Proof that, no matter your circumstances, home is where you make it. —L.R.

[1] The sailors drank (and tossed) so much beer, they joked the 40-foot-deep lake was "35 feet of water, and 5 feet of beer bottles."

WILL SLEEP EVER BE REPLACEABLE?

WHAT'S THE EQUIVALENT OF "WHEN PIGS FLY!" IN OTHER LANGUAGES?

Far-fetched idioms aren't limited to English.

- **AFRIKAANS**
  When horses grow horns.
- **DUTCH**
  When the cows are dancing on ice
- **GEORGIAN**
  When the donkey climbs the tree.
- **GERMAN**
  On St. Never's Day
- **HEBREW**
  When hair grows on the palm of my hand
- **LATVIAN**
  When an owl's tail blooms
- **MALAYALAM (INDIA)**
  When the crow will fly upside down.
- **MARATHI (INDIA)**
  If your aunt had a moustache, she'd be your uncle
- **POLISH**
  Sooner will a cactus grow on my palm.
- **PORTUGUESE**
  When it rains pocketknives.

ALAMY (EBRAD ANDYSA TH SLEEPLESS SOCIETY; WILLSLEEPNEVER)

Can zebras save our streets?

Yes! The trick to making an intersection safe? Make it more visible. In Britain, city governments paint crooked stripes along the road to alert drivers that pedestrians are waiting down the bend, but in Bolivia, an army of "traffic zebras"—young people dressed in zebra costumes—stand at intersections scolding reckless drivers and protecting pedestrians. The La Paz city government started the program in 2001 with 24 zebras, and the number has bloomed to 250. Most costumed crusaders are at-risk youth who receive a stipend and free classes in exchange for protecting the city's streets. Civil service has never looked so cuddly. —L.R.

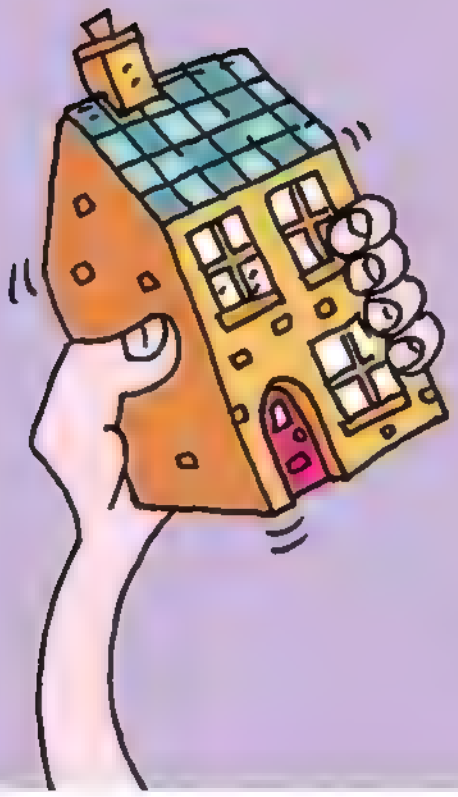
- **RUSSIAN**
  When crawfish/lobster whistle on the mountain.
- **THAI**
  One afternoon in your next reincarnation
- **TURKISH**
  When the fish climbs the poplar tree

What's the deepest anyone has been in the ocean?

In 2012, James Cameron (yes, that James Cameron) traveled to the bottom of the Mariana Trench—35,756 feet below the seas surface—in a lime green, stretch limo-sized submarine. Cameron, an oceanography enthusiast who had already taken 33 dives to see the *Titanic*, was chosen as part of the National Geographic explorer-in-residence program. Scientists are still analyzing the expedition's findings, but their discoveries include single-celled organisms that suggest life on earth began around ocean vents, two new species of shrimp-like amphipods that could lead to new treatments for Alzheimer's, and the world's deepest-dwelling sea cucumbers (described by one researcher as a "fat worm with long feeding appendages"). —M.R.

HOW DOES THE WITNESS PROTECTION PROGRAM WORK?

The Federal Witness Protection Program—a.k.a. WITSEC—has provided safe harbor for more than 8,500 federal witnesses and their families in exchange for damning testimony. Here's how.



What happens when someone enters the program?
New inductees are driven in cars with blacked-out windows to a secret safe house in the Washington, D.C., area called the WITSEC Safesite and Orientation Center. To ensure they don't see one another, witnesses are locked in separate rooms. The bomb-resistant facility can house up to six families and offers psychological counseling.

Who gets placed in WITSEC?
The movie trope of an innocent person caught in criminal cross fire is rare. Gerald Shur,[1] who developed the WITSEC program in the 1970s, estimates that less than five percent of witnesses are free of any wrongdoing. The majority are career crooks—organized crime members, drug dealers, terrorists—looking to be absolved of charges against them and protected from revenge.

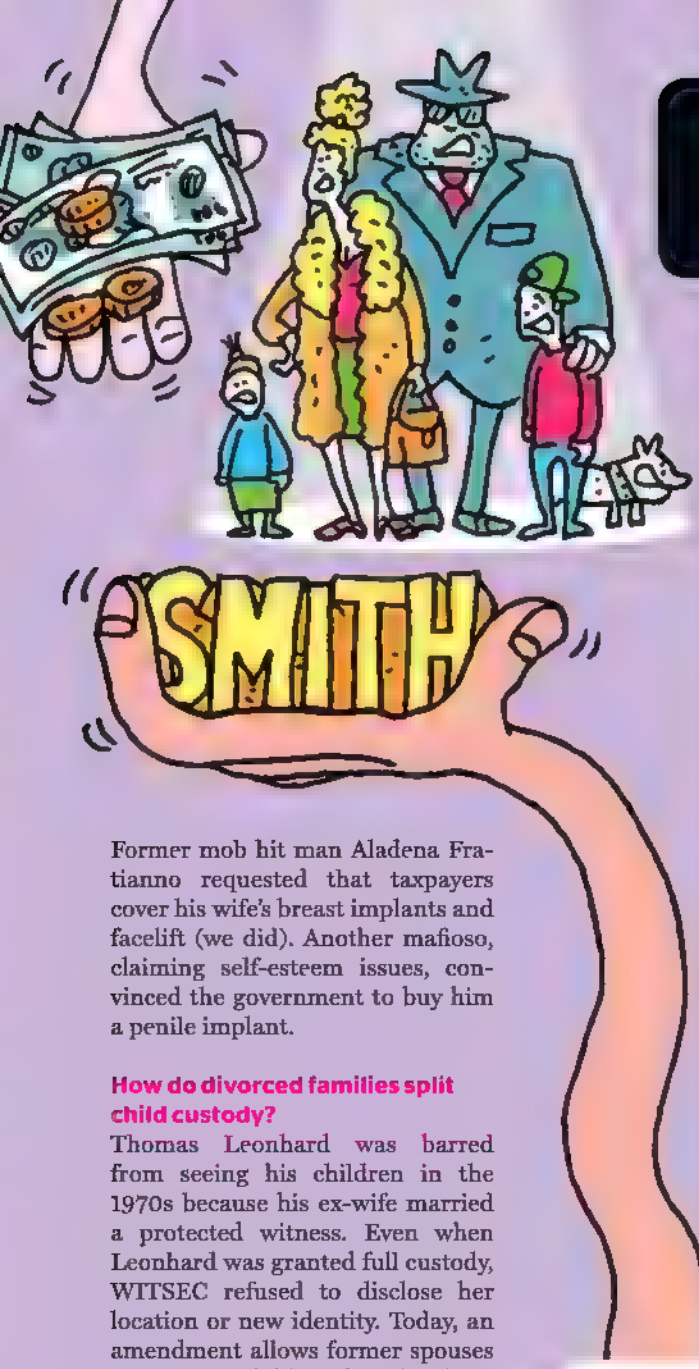
[1] Co-author, *WITSEC: Inside the Federal Witness Protection Program*; to this day does not know where witnesses are hidden.

Does everyone get a new name?
To help them acclimate to their new identity, most witnesses are allowed to keep the same first name. There's a practical reason for this: When somebody calls the witness's "new" name, they'll have an authentic reaction. It also helps witnesses stop themselves from signing their old name in full.

Who foots the bill for a new life?
WITSEC typically pays for housing in the witness's new region, new furnishings, and a "salary" based on the area's cost of living. On average, members receive roughly $60,000 before they're expected to land jobs within six months. At the height of the organized crime offensive, the Justice Department paid out as much as $1 million to witnesses.

Has anyone milked the system?
In the 1970s and 1980s, the government would do anything to make mobsters leak details—so it indulged some questionable expenses.

ANDY SMITH JR. (WITNESS PROTECTION) ELLEN SJAR (KEY GRIP) TAT NGUYEN (STYLIST) STEVEN TWIGG-FLEMING (PINEAPPLE)



Former mob hit man Aladena Fratianno requested that taxpayers cover his wife's breast implants and facelift (we did). Another mafioso, claiming self-esteem issues, convinced the government to buy him a penile implant.

How do divorced families split child custody?

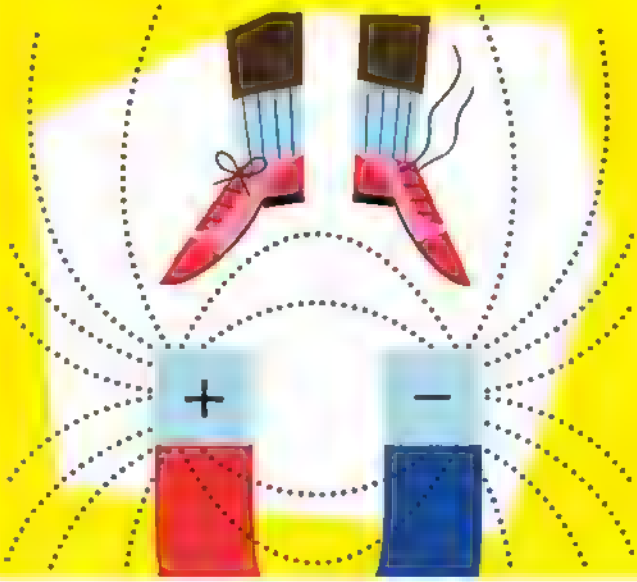
Thomas Leonhard was barred from seeing his children in the 1970s because his ex-wife married a protected witness. Even when Leonhard was granted full custody, WITSEC refused to disclose her location or new identity. Today, an amendment allows former spouses to see their children, but they have to follow a circuitous airplane route, using an alias.

Do imprisoned witnesses get special protection?

Some witnesses still have to serve time in prison, but WITSEC can offer suspended sentences. To incentivize those who wind up behind bars, WITSEC can make "arrangements." In 1996, the *Pittsburgh Post-Gazette* revealed that imprisoned witnesses enjoyed live lobsters and pig roasts through an anonymous ordering system. —J.R.

Can humans levitate?

Maybe! We just have to hack the wonders of diamagnetism. All objects can be repelled by a magnet if that magnet is strong enough. In 1997, Nobel physicist Andre Geim tested this principle on a live frog—and it worked! Geim dropped the amphibian inside a tube and used a strong magnet, called a bitter electromagnet, to make the amphibian float. The secret is water: H_2O is an excellent diamagnet, and frogs (like humans) are full of it. Unfortunately, no mad scientist has built a magnet big enough to safely send creatures our size skyward. You'll have better luck waiting for someone to leak the formula for Willy Wonka's Fizzy Lifting Drink. —L.R



Why is the pineapple a symbol of hospitality?

The pineapple became a pricey luxury item in Europe after Columbus brought the fruit to Spain from the Caribbean in the 1490s. Like all expensive things, gifting pineapples became a highfalutin way to show off wealth and generosity. (The gesture was so important to King Charles II of England that he posed with a pineapple in one of his official portraits.) The practice of giving strangers pineapples spread to colonial America, where ship captains placed pineapples outside their home as a sign that they were in town and ready to receive visitors. The fruit has been stamped on fuzzy American welcome mats ever since. —M.R.

WHAT'S IT LIKE TO WORK AT A JAPANESE HOST CLUB?

At host clubs, charming young men get paid to entertain women with drinks, conversation, and karaoke. We asked a host what it's like to make a living as a professional temporary boyfriend.

So hosts are paid to flirt?

To flirt *a lot*. On an average night, a host entertains around 20 private guests. While some customers simply want someone to talk to, others may expect, um, more. Sex is illegal, but a little nudity is not, and customers who pay big money for small drinks expect exceptional service—sometimes after working hours.

Is drinking alcohol part of the job?

You bet. A top-ranking host knocks back 20 to 50 drinks (mostly sake and bubbly) per shift—and gets paid for it!

How's the pay?

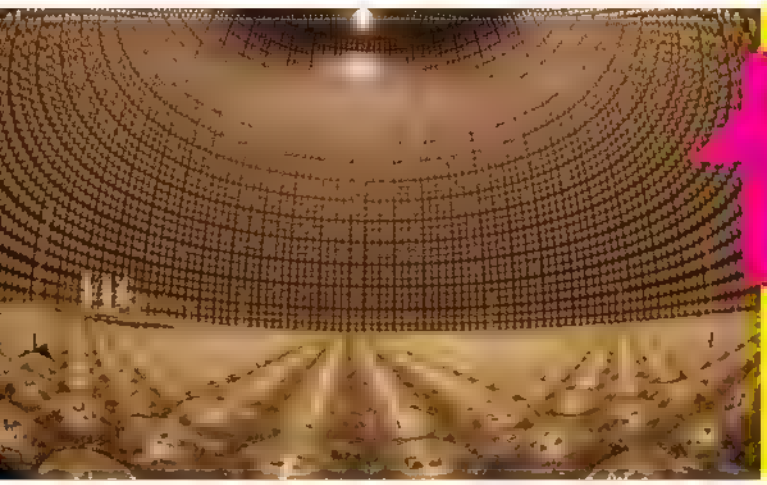
At clubs like Walhalla in Nagoya, Japan, hosts earn a base rate of $65 per day. If they bring in more than $3,200 each month, they also earn a 50 percent commission. Yoshina, a host who works at Walhalla, says he once earned $18,000 in one month!

What are the risks?

Customers and job-seekers should do their homework before entering a host club. Some clubs are operated by Japan's organized crime syndicate, the yakuza. In the past, several yakuza clubs fooled customers into spending huge amounts of money and made them work at the club to pay off the tab.

Are there any perks?

The support system among hosts is impressive. Not confident in your wardrobe? Your colleagues will loan you expensive, brand-name suits at no cost. Need advice after a hard



HOW DO YOU CATCH A NEUTRINO?

Neutrinos are subatomic particles made by cosmic nuclear reactions (like supernovas). And they're puny—50,000 times tinier than an electron. The particles are so small that, in the time it takes you to read this sentence, about 100 trillion neutrinos will have passed through your body. That's because atoms are 99.9 percent empty space. It's hard to comprehend, but all matter—including your body—is mostly empty. Neutrinos are so tiny that they can zoom

Why does rain smell?

It doesn't. That earthy post-storm aroma comes from geosmin, an organic compound made by dirt-loving bacteria, and oils from decomposing plants and animals. Rain agitates these soil ingredients to release a scent called petrichor (from the Greek *petra*, stone, and *ichor*, blood of the gods).[2] In Australia, petrichor is strong enough to cause "cultural synesthesia." For centuries, the Pitjantjatjara people associated the scent with plant growth. Now they involuntarily link petrichor with the color green. **—M.R.**

The scent of geosmin helps camels find water in the desert.
[2] In India, you can buy petrichor-scented perfume called *matti ka attar*

day at work? Full-time hosts can room with each other in a company-owned luxury apartment.

You need to sell your conversation skills, your looks, and your entertainment value. Some clubs require hosts to learn dance routines and karaoke. Acting skills are a must, too: You'll have to pretend you're interested in every customer—even the ones who aren't all that interesting.

Getting your foot in the door is as easy as clicking a link. Seriously. Your interest alone is almost all you need to get the job. Just know your liver will be punished by heavy drinking. Your lungs will be punished by cigarette smoke. Your throat will be punished by speaking over loud music all evening (and singing karaoke). If you can keep that up for six days a week, the job is yours. **—M.L.**

through this void without slowing. The only thing that can stop one is a collision with another subatomic particle.

So how do scientists study these atomic Houdinis? In Japan, the Super Kamiokande neutrino observatory is buried 3,281 feet below a mountain. That distance blocks other particles like protons, and while neutrinos can pierce the rock, not all of them escape. Thanks to a 50,000-ton pool of ultra-distilled water surrounded by light detectors, neutrinos that smack into other subatomic particles produce a flash of light called a Cherenkov radiation. Scientists can study those flashes to learn about the most abundant particles in the cosmos. **—L.R.**

What's the best way to win at rock paper scissors?

Jamie Langridge won the 2007 USA Rock Paper Scissors Championship (plus $50,000 and a lifetime of glory). At last, his secrets.

STEP 1
DON'T PRACTICE

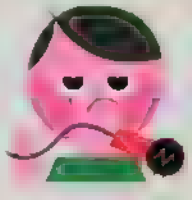
The only time I played rock paper scissors leading up to the 2007 USARPS Tournament was when I was in elementary school. I got talked into playing in the tournament at a bar during a party. Two weeks later, we met for the semifinals. Then I went to the championships in Vegas. And won.

STEP 2
GET CONFUSINGLY INTROSPECTIVE

For each throw, I would anticipate whatever my competitor was about to throw. Or I'd think about what they would think I would throw: What does he think I'm thinking? Then I'd throw the opposite of that.

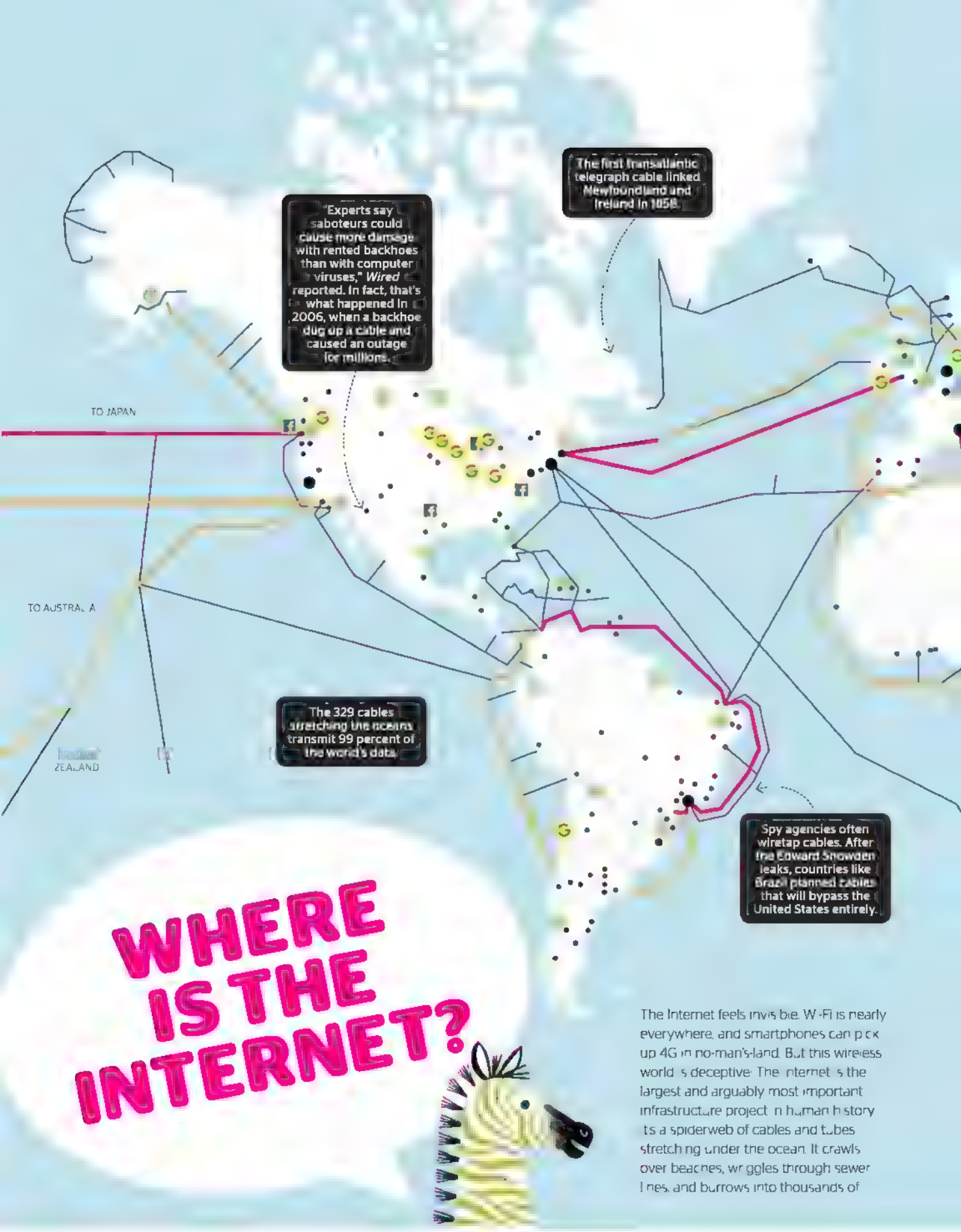
STEP 3
DON'T FALL FOR MIND GAMES

The guy I played against in the championship would say "please, please, please"—or other things that started with the letter *p*—to make me throw paper. He'd say, "Let's rock and roll!" to make me throw rock. Subliminal stuff. It didn't work.



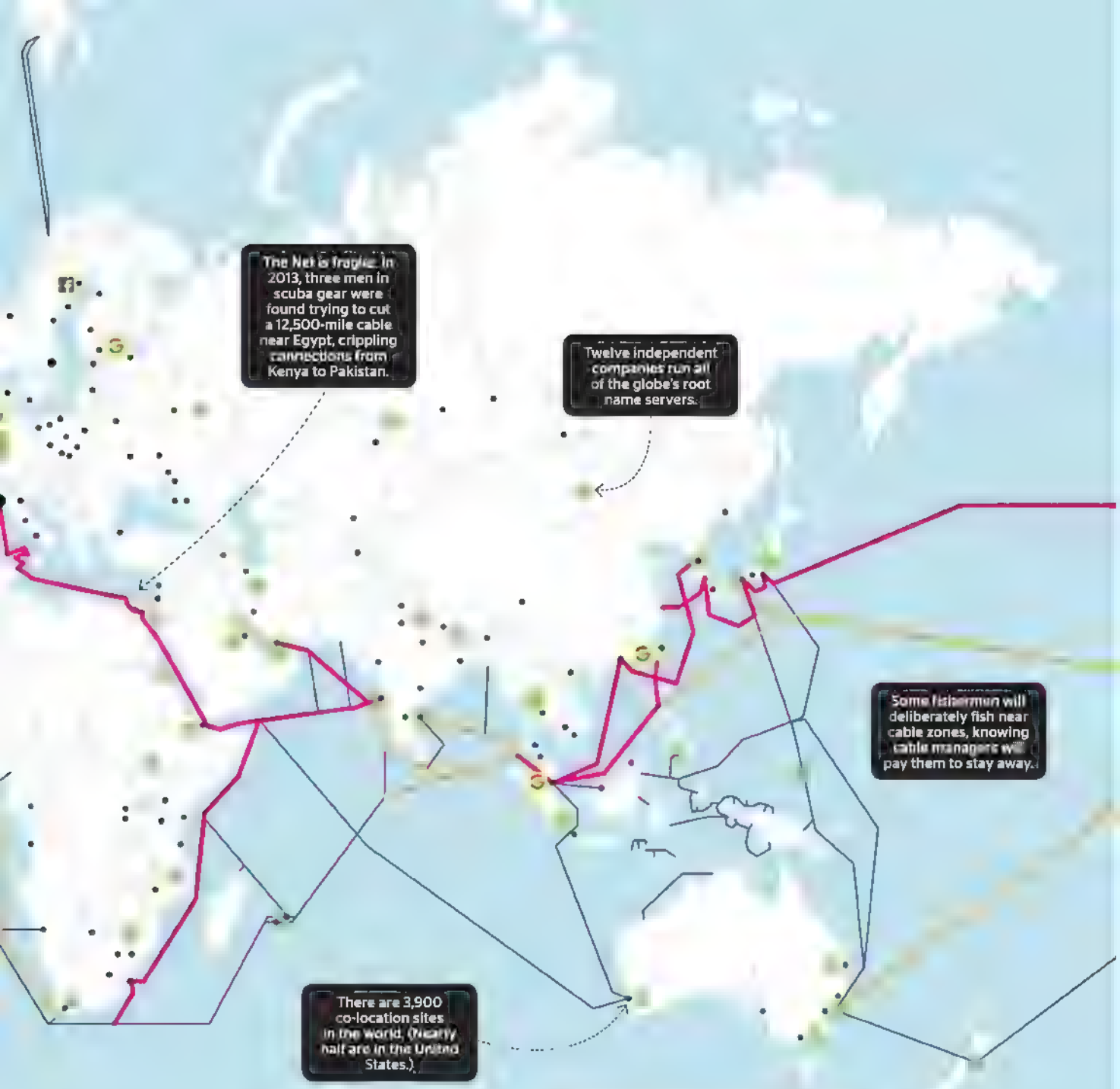
STEP 4
EVERY TIME IS QUITTING TIME

Afterward, people always wanted to play me. But my streak was over. I always lost. It's OK. I never wanted to play in the first place. **—S.A.**


"Experts say saboteurs could cause more damage with rented backhoes than with computer viruses," *Wired* reported. In fact, that's what happened in 2006, when a backhoe dug up a cable and caused an outage for millions.
The first transatlantic telegraph cable linked Newfoundland and Ireland in 1858.
TO JAPAN
TO AUSTRALIA
NEW ZEALAND
The 329 cables stretching the oceans transmit 99 percent of the world's data.
Spy agencies often wiretap cables. After the Edward Snowden leaks, countries like Brazil planned cables that will bypass the United States entirely.

WHERE IS THE INTERNET?

The Internet feels invisible. Wi-Fi is nearly everywhere, and smartphones can pick up 4G in no-man's-land. But this wireless world is deceptive. The Internet is the largest and arguably most important infrastructure project in human history. It's a spiderweb of cables and tubes stretching under the ocean. It crawls over beaches, wriggles through sewer lines, and burrows into thousands of


The Net is fragile. In 2013, three men in scuba gear were found trying to cut a 12,500-mile cable near Egypt, crippling connections from Kenya to Pakistan.
Twelve independent companies run all of the globe's root name servers.
Some fishermen will deliberately fish near cable zones, knowing cable managers will pay them to stay away.
There are 3,900 co-location sites in the world. (Nearly half are in the United States.)
KEY
MAJOR ROUTE WITH SEVEN OR MORE SUBMARINE CABLES
MODIZED ROUTE WITH FOUR TO SIX SUBMARINE CABLES
MINOR ROUTE WITH THREE OR FEWER SUBMARINE CABLES
CO-LOCATION CENTER. DATA CENTER THAT HOSTS MULTIPLE WEBSITES
ROOT NAME SERVER. PLACES THAT TRANSLATE DOMAIN NAMES TO AN IP ADDRESS (WITHOUT THEM, YOU'D HAVE TO TYPE IN "50.191.793" TO REACH MENTALFLOSS.COM)
GOOGLE DATA CENTER. WHERE YOUR SEARCH HISTORY IS STORED
FACEBOOK DATA CENTER. WHERE YOUR POLITICAL RANTS RESIDE

buildings—data centers and server sites that connect billions. And it risks damage from wayward boat anchors, sharp-toothed sharks, and spies. The Internet is more than web addresses: It's physical addresses. Here's where to find it. —L.R.

[1]This map is not comprehensive! There are hundreds of server sites and data centers, and more undersea cables. We focused only on major locations and routes

Thou *shalt* commit adultery?
REGULA
AUSCUL
TA. FILI
VARBA
MAGIS-
TRI...
I.S.R.

Let There Be Light

Or brightness! Or maybe a strong glow? Definitely less shade. (Inside the epic quest to translate the Bible.)

BY **NICK GREENE**

It doesn't matter who you are—a Sunday school teacher, a 12-year-old memorizing the Torah for your bar or bat mitzvah, or an atheist who has never set foot inside a church—you probably know the opening phrase of the Bible. And, chances are, you have it wrong.

"In the beginning," the King James Bible starts, "God created the heaven and the earth." Most of the English-speaking world will recognize that line. But it's not an accurate translation of the original ancient Hebrew.

The New Revised Standard Version of the Bible (NRSV), a translation that was honed by a diverse council of experts throughout the 20th century, offers this alternative: "In the beginning when God created the heavens and the earth." That isn't quite right either.

The 100-plus other English translations also miss the mark. And here's where it gets complicated. It's not because they're poor translations. The NRSV, for example, is among the best. It serves as the base material for The New Oxford Annotated Bible, which is arguably the most comprehensive study Bible money can buy. But the New Oxford includes a footnote, right in the beginning, alerting the reader to different versions of that line. According to Michael D. Coogan, Oxford's editor, the best translation of Genesis 1:1 is: "When God began to create the heavens and the earth."

For millions of believers, that alteration shifts the timeline for literally everything. "It's not talking about an absolute beginning," Coogan explains. "The beginning of the cosmos, the big bang, or anything like that. But just, when God started to create the heavens and the earth, this is what he did." Coogan and his team of scholars at Oxford University Press aren't allowed to change the text, so their Bible includes a brief footnote and moves on.

After all, it's just the beginning.

THINK YOUR JOB IS HIGH STRESS?

Millions of people treat the Bible as the authoritative word of God. Western civilization has been shaped—for better and worse—by the ways people interpret the book. People place faith in translators who have dedicated themselves to the same goal: to get it right.

But translating the Bible is hard. Scholars can't just

ALAMY

plug in an English word and call it a day. The gig requires a vast understanding of the history of ancient cultures and their languages. And quite frequently, there *is* no "right."

Take the Hebrew Bible. Its books were written in ancient Hebrew, a language that appears in only one major text: the Hebrew Bible. It is its own source material. The Rosetta Stone helped scholars crack the meaning of ancient Egyptian hieroglyphics, but the Hebrew Bible has no equivalent aid. "There are many words in the Bible that occur only once," Coogan says, "and we're not sure what they mean."

One of the estimated 1,500 words that aren't repeated appears in Genesis 6, when God asks Noah to build an ark out of "gopher wood." It's the only time "gopher" appears, and it's not referring to the rodent. Scholars have guessed it means cypress, cedar, or some other common wood, and translated it thusly. Others resisted taking a guess and kept it as is, leaving it up to the reader to picture what a boat made of "gopher wood" would look like.

Some of the first Bible translators had worse troubles. The Masoretes, Jewish scholars in the 6th to 10th centuries, established the standardized Old Testament despite the troubling fact that classical Hebrew contained no vowels. The Masoretes gazed upon a field of consonants and sprinkled them with vowels. To this day, theologians are still playing with those vowels in an attempt to solve the oldest Word Jumble in Western civilization.

To complicate matters, the Bible is not really one book, but a library of at least 66 books. (The word *bible* comes from the Greek *ta biblia*, meaning "the books.") The earliest parts of the Hebrew Bible date back to almost 1000 BCE, and the most recent sections were written in the 2nd century BCE. As anyone who's struggled through the original *Canterbury Tales* can tell you, language changes *a lot* over centuries. A word in one section of the Bible may mean something different a few pages later—because the sections were written 500 years apart.

For example, *kelayot* means kidneys in Hebrew. A section from Leviticus uses the word to describe a sacrifice in which literal kidneys were burned. But there was also a time when *kelayot* meant all internal organs. Plus, in Psalm 16, *kelayot* is used metaphorically, and translators interpret it to mean a different organ altogether: "In the night also my *heart* instructs me." A modern translator must understand the eras in which these sentences were written, lest readers think kidney function dictates faith.

Besides ancient Hebrew, the original texts of the Bible were written in Greek, Aramaic, and Latin. Most of the New Testament was written in Koine, a colloquial and almost conversational Greek. Versions of these books were repeatedly copied, some more faithfully than others. Like a game of telephone, small changes appeared in later editions, and these changes spread and begat errors down the line. In Ecclesiasticus 30, three separate lines end with the words "in his youth." Centuries ago, a copyist must have assumed this repetition was a mistake and "fixed" it, because now some versions omit the phrase.

Some mistakes are more obvious. In 1631, a London printing shop produced a version of the Bible that accidentally omitted the word *not* from the seventh commandment, stating: "Thou shalt commit adultery." The printers were fined and stripped of their licenses, and copies of this "Wicked Bible" were destroyed, though surviving editions still pop up at auction houses and sell for tens of thousands of dollars.

TRANSLATION COMES DOWN TO CHOICE, AND ONE PERSON CAN MAKE ALL THE DIFFERENCE.

Another goof appears in Exodus. After Moses returns from the mountain where he spoke with God, his face was said to shine radiantly. In the 4th century, one Latin translator described the effect as horn-like beams of light emanating from Moses's head. The description led some readers, and artists, to believe Moses literally had horns. Which means that Moses is easy to spot in medieval and Renaissance art—he's the guy with stubby antlers sprouting from his forehead.

THOU SHALT NOT TRANSLATE INCORRECTLY (OR AT ALL)

The first English Bible didn't exist until the late 14th century, when John Wycliffe led a team of translators to convert many of the texts into a language that common folks could understand. Wycliffe believed there shouldn't be a buffer between the word of God and the people. Naturally, that buffer—the Catholic Church—didn't like his translation. Allowing commoners to interpret the Bible risked its authority, and the Vatican went to extreme lengths to preserve its control. It's one reason why the church used stained glass windows—since parishioners couldn't read Bible stories, they were given pictures instead.

There were legitimate arguments against Wycliffe's translations. For one, it was a translation of a translation. Wycliffe worked from the Latin Vulgate version, which was compiled by St. Jerome in the 4th century, and not from the original Hebrew and Greek. His Bible was also translated word for word, so it didn't flow grammatically.

Despite its shabby form, Wycliffe's Middle English translation spread among the country's lower classes. The Pope hated Wycliffe, as did his representative in England, the Archbishop of Canterbury, and they blamed a string of unrelated peasant uprisings on his translation. They arrested him, and in 1384, he died

after having been banished to his home parish.

But Wycliffe continued to haunt the monarchy and the Church after his death. In 1408 a council passed the Constitutions of Oxford, an act that banned all unauthorized translations of the Bible, and Wycliffe was posthumously declared a heretic in 1415. In 1428 Pope Martin V ordered that his bones be exhumed, burned, and thrown into the River Swift.

This marked the beginning of a little rough patch for Bible translators in England, one that culminated in the execution of William Tyndale in 1536. Tyndale translated the Bible into English from the original Hebrew and Greek, and, with the help of Gutenberg's press, he produced perhaps the most influential English Bible of all time.

As his translation was unauthorized, Tyndale was charged with the same offenses that had been posthumously levied on Wycliffe. Tyndale went into hiding, but an informant ratted him out, and he was subsequently tried and found guilty. He was strangled to death and his corpse was burned at the stake in front of a crowd. His last words were "Lord, open the king of England's eyes!"

Decades later, in 1604, the message got through. Newly ordained as the English king, James I ordered "that a translation be made of the whole Bible, as consonant as can be to the original Hebrew and Greek." He assigned 54 translators to the task and put them into groups to check each other's work—an early version of the peer review process. The resulting manuscript, the King James Version, is celebrated as scripture and as a work of literature.

The King James Bible is also largely the work of Tyndale. Three-quarters of its New Testament is worded exactly like Tyndale's, and most of the text that isn't directly copied is liberally cribbed from Tyndale's work. Tyndale was a pious man who believed he was translating the direct word of God, so matters of credit would not have concerned him, but he probably would have enjoyed the benefit of living in a time when a translation credit didn't mean being roasted at the stake.

We weren't kidding about the horns. This statue of Moses was made by Michelangelo and resides in the church of San Pietro in Vincoli in Rome, Italy.

A-AMY

WHY GOD'S WORD KEEPS CHANGING

For 250 years, before a wave of new translations began appearing in the 1800s, the King James Version existed as the de facto English Bible. Modern archaeological discoveries like the Dead Sea Scrolls, uncovered in the 1940s and 1950s, have since provided linguistic and cultural context to the Old Testament. With every find, translators must revisit the texts.

These discoveries may help crystallize what life was like in ancient Israel, but translators have to consider shifts in modern society too. For example, Saint Paul in his letters addresses his audience as "brothers." Coogan says that when the committee of translators met in the 1980s to decide the language of the NRSV, they changed it to "brothers and sisters" to be more inclusive. The change outraged conservative sects. "For some more evangelical Protestants," Coogan says, "the NRSV is practically heretical."

But such changes aren't new; the opposite happened in 16th- and 17th-century England. According to the King James Version, John 15:13 reads, "Greater love hath no man than this, that a man lay down his life for his friends." But the original ancient Greek says "no one," not "no man." In this instance, Enlightenment society exercised its own judgment and specified a gender where there was none.

Russian novelist Vladimir Nabokov said the worst sin a translator can make is when "a masterpiece is planished and patted into such a shape, vilely beautified in such a fashion as to conform to the notions and prejudices of a given public." This, he said, "is a crime, to be punished by the stocks as plagiarists were in the shoe-buckle days."

Coogan agrees. "The Bible comes from a very different culture with different values and different ways of perceiving reality," he says. "To make it sound like a 20th-century, 21st-century American, I think, is a mistake."

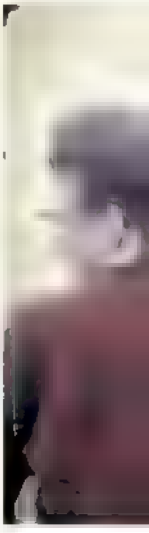
Translation comes down to choice, and one person can make all the difference. To return to Genesis 1:1, the NRSV kept the famous opener, Coogan says, "because the Gospel of John begins, 'In the beginning,' and they wanted to consciously or unconsciously keep that link clear." The "they" Coogan refers to is one man, Bruce M. Metzger, the chair of the committee. Although the group collectively scrapped "In the beginning," Metzger slipped it back in.

The committee last met in the 1980s, and there are no plans for the members to meet again. Their work—which boasts inclusive language and Metzger's rogue addition—will stand for the foreseeable future. Meanwhile, Coogan and his team are in the midst of preparing a new edition of the Oxford annotation (the last one was published in 2010). They have plenty of additions to make—a lot can happen to a millennia-old book in just two years. ❀

097
The Amazing Adventures
of
The Phoenix
of Hiroshima

THIS SAILBOAT CIRCUMNAVIGATED THE GLOBE, SAILED INTO NUCLEAR TEST ZONES, CARRIED QUAKERS TO THE FRONT LINES OF VIETNAM—AND SURVIVED IT ALL TO BECOME A SYMBOL OF WORLD PEACE SO WHY IS IT ROTTING AT THE BOTTOM OF A CALIFORNIA RIVER?

BY **NICOLE PASULKA**
ILLUSTRATION BY **CHRISTINA UNG**



Photos, clockwise from top left: Earle inside the unfinished boat, which he wanted to name *Daruma*, after the wobbly Japanese dolls ("because if the sea pushed her over seven times, she would come up eight"); the family counting canned food they'd purchase at major ports to see how long it would last; the boat in French Polynesia; in what Barbara describes as the "iron fist" of stormy seas; the *Phoenix*'s christening; the family, along with sailors Moto and Nick, preparing to leave Japan.

AL HUGON WAS LYING ON THE CARPET of his vacation home in Santa Cruz, California, staring up at a bookshelf. It was late summer, 1997, and news coverage of Princess Diana's death was the only thing on TV. Hugon, who ran a printing business in the Bay Area, was gently pestering his girlfriend to move onto his 50-foot sailboat with him.

When Hugon had purchased the boat seven years earlier at an auction, a piece of plywood covered a hole in its hull. Lumber was piled on the deck. But despite its sorry shape, Hugon says the boat "just felt right. It smelled good and it felt right."

He bought it for $2,500, then spent $8,000 swapping out rotten planks, the rudder, and hinges. He rebuilt the engine and replaced the water tanks. Once, while the yacht was dry-docked, an old-timer asked if he'd found any bullet holes in the hull—there were rumors the boat had been fired at during the Korean War—but Hugon never spotted any. He did notice that the stairs, the archway, and the original planks were all carved by hand.

Hugon's girlfriend was firmly opposed to moving onto the yacht. She couldn't envision her three kids, Hugon's daughter, and the pair of them crammed inside a cabin the size of their living room. "We're not all going to live on that boat," she insisted. As she spoke, Hugon noticed a title on his bookshelf: *All in the Same Boat*.

Written by American anthropologist Earle Reynolds and his wife, Barbara, *All in the Same Boat* describes the around-the-world trip their nuclear family took in a 50-foot sailboat named *Phoenix of Hiroshima*. Living on a yacht smaller than a subway car, they visited major ports and uninhabited islands.

Hugon picked up the book. The descriptions of the *Phoenix* sounded familiar. He flipped to the photographs and saw that the roof and the planking were hand carved. "I knew it all," Hugon says. "I'd sanded it and painted it."

He turned to his girlfriend, astonished: "This is my boat."

THE STORY OF THE *PHOENIX* begins with a man named Earle Reynolds, who had always dreamed of sailing around the world. In 1951, the physical anthropologist left his job at Antioch College in Ohio and moved with his wife and three children to Hiroshima, Japan, to study the effects of radiation on atomic bomb survivors. For the first time in his life, Earle lived by the ocean. By day, he examined survivors of the blast. By night, he fantasized about setting sail.

Born to circus performers in 1910, Earle was naturally equipped with a sense of adventure. He was also ambitious: He often told people he was the first child in his big-top "family" to get a college degree, earning a Ph.D. and becoming an expert in human growth and development. In Japan, he'd return home from work every night and research sailboat construction. A boat maker in Miyajimaguchi built a ship according to Earle's plans, working by hand with saws, adzes, chisels, and hammers. Eighteen months of labor later, the family moved onto the *Phoenix of Hiroshima*. They planned to sail around the world.

"We gave the dog away—traded it in for a tricolored cat—sold our woody station wagon," says Earle's daughter, Jessica. As the skipper, Earle assigned each shipmate a role. Barbara, a published author, was in charge of cooking, provisioning, and education. Ted, their 16-year-old son, was the navigator. Jessica, 10, was the "ship's historian" and kept a journal. (She embraced the voyage after her father promised that her dolls could have their own cubby.) Three Japanese men with some sailing experience signed on as crew members.

Before a crowd of well-wishers, the *Phoenix* left Hiroshima Harbor on October 4, 1954. The first stop was Hawaii—about 4,000 miles away.

COURTESY JESSICA REYNOLDS

"To our hundreds of friends the whole venture was nothing less than a gallant form of suicide," Earle wrote in *All in the Same Boat*. He had no sailing experience. He didn't know if he'd get seasick. He'd only recently discovered that boats don't have brakes. Earlier that year, when the *Phoenix* touched water for the first time, Earle crashed the yacht into another boat watching in the harbor.

Then, in an early test run, the crew failed to realize the anchor had been dragging the whole time. "I never put it together that they didn't know what they were doing," Jessica says.

Within 12 hours of setting sail for Hawaii, the barometer fell. A storm rocked the ship as waves crashed over the deck. Anything that wasn't tied down went airborne. Jessica and Barbara stayed below deck and listened. "The ship groans with a thousand voices," Barbara wrote in her journal. She found Jessica in her bunk buried under toys that had fallen from their cubbyholes.

EARLE HAD JUST LEARNED BOATS DON'T HAVE BRAKES.

Now he was sailing the world.

The crew settled into a rhythm during calmer weather. They watched dolphins play in bioluminescent waters and made a game of lassoing albatross. In Bali, they watched a 17-year-old girl get her canine teeth filed down. In Huahine, a French Polynesian island, they held the skulls of former chiefs. Earle got a permit to take two animals of every kind from the Galapagos Islands, and the family sailed with a baby goat and a tortoise named Jonathan Mushmouth, whom they acquired in exchange for instant milk, hot pepper sauce, and a can of shortening.

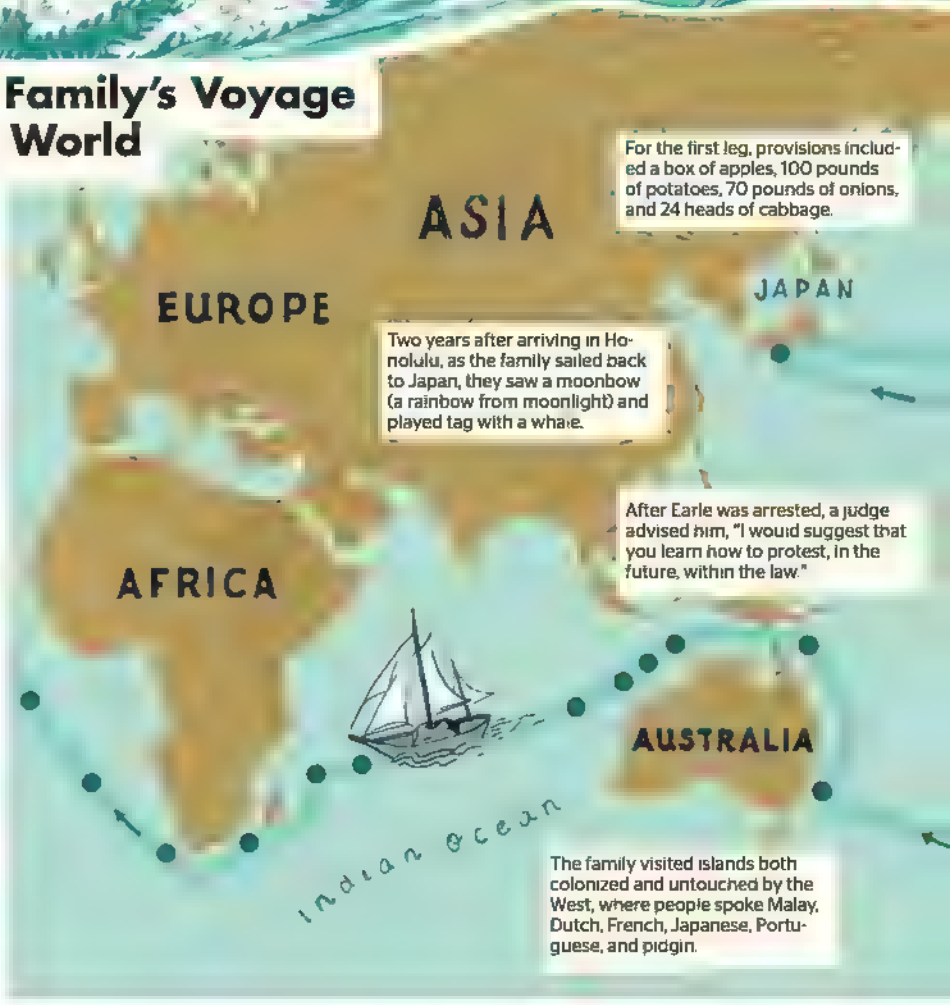
The *Phoenix* traveled from Hawaii to the Polynesian Islands, through the Tasman Sea into the Indian Ocean, around the Cape of Good Hope in South Africa, to South America, the Caribbean, New York City, through the Panama Canal, the Galapagos Islands, and back to Hawaii. They stopped in ports like Sydney and Cape Town and dozens of sparsely populated, relatively undeveloped places where people spoke pidgin and native languages.

Most locals they encountered were curious and hospitable. The Japanese crew members, however, were often regarded with disdain and barred from entering white-only yacht clubs. On board, there was less racial animus, though the family did refer to the Japanese crew members as "boys." Earle—who knew that the crew saw him as "cautious to the point of obsession"—chastised the sailors for not following orders. The final straw came when he reprimanded a crew member for steering the boat while sitting. Two of the men left the yacht and returned to Japan.

"In many ways Earle was a cynic," his friend Bob Eaton says. "A cynic with high hopes." *All in the Same Boat* gives occasional glimpses of those "high hopes." Cruising from the Java Sea to the Indian Ocean, Earle describes "the thrill I sometimes felt, lying in my bunk and listening to the whisper of water flowing past, in thinking, 'I'm doing it!'" He continued, "This is my ship, my life, my adventure, and nobody can take it away from me!"

But the ship could, and would, be taken away from Earle. Before the final leg of its trip, the *Phoenix* would be wrenched from his control and thrust into the Atomic Age.

A Nuclear Family's Voyage Across the World


ASIA
EUROPE
JAPAN
AFRICA
AUSTRALIA
Indian Ocean
For the first leg, provisions included a box of apples, 100 pounds of potatoes, 70 pounds of onions, and 24 heads of cabbage.
Two years after arriving in Honolulu, as the family sailed back to Japan, they saw a moonbow (a rainbow from moonlight) and played tag with a whale.
After Earle was arrested, a judge advised him, "I would suggest that you learn how to protest, in the future, within the law."
The family visited islands both colonized and untouched by the West, where people spoke Malay, Dutch, French, Japanese, Portuguese, and pidgin.

THE *PHOENIX* SAILED INTO HAWAII on April 9, 1958. The boat had been at sea for three and a half years and traveled 50,000 miles, but "we were disappointing copy—no shipwrecks, no brush with cannibals, no mutiny, no piracy—we just sailed around the world and came back," Earle wrote in his 1961 book, *The Forbidden Voyage*.

Nearby, the Quaker crew of a 30-foot sailboat called the *Golden Rule* was generating more exciting press. A Christian denomination with a legacy of pacifism, Quakers had been conscientious objectors to the First and Second World Wars. Now the *Golden Rule* was planning to sail some 2,500 miles to Bikini Atoll to protest nuclear weapons testing. It was a direct response to an Atomic Energy Commission regulation forbidding American citizens from sailing through the zone.

Earle thought the crew of the *Golden Rule* were "crackpots" for taking on the government. He was uncomfortable with religion and civil disobedience, but Barbara disagreed. She invited the Quakers for dinner. "Nuclear explosions, by any nation, are inhuman, immoral, contemptuous crimes against all mankind," one member explained to the family.

Having lived in Hiroshima, Earle had seen the damage an atomic bomb could do. He suspected that nuclear weapons testing was unsafe and believed that the United States could not legally restrict sailing on international waters. His feelings began to change. On May 1, 1958, the crew of the *Golden Rule* left Ala Wai Harbor, only to be stopped five miles offshore and sent back. A month later, on June 4, they tried again. This time they were arrested and sentenced to 60 days in prison.

Now that the Quaker crew was in jail, Earle considered carrying on their protest. After all, the *Phoenix* had been built in Hiroshima. Niichi Mikami, the remaining Japanese sailor, was a native of Hiroshima. Jessica and Ted threw their support behind the mission. "It was like we were the only people in the world that knew about these dangers, the only people who could do anything about them," Jessica says. Earle knew that protesting the government would end his academic career. Still, he and Barbara decided to sail.

Feeling "the pressure of the world," the *Phoenix* took off June 11. They brought charts, a medicine chest, a radio, and a box of respirators from the *Golden Rule*. "What a pitiful protection against radioactivity!" Earle wrote. "How does one divide four masks among five people?" He knew he'd never open the box.

For three weeks, the *Phoenix* sailed in mild weather. When they approached the test zone, Earle announced his intention to enter. No response. The next day, a military ship approached—they'd been monitoring the *Phoenix* all day but had ignored their calls. Armed officers arrested Earle and ordered him to sail to Kwajalein military base. Shortly thereafter, they saw a dirty orange flash, illuminating the clouds.

Earle was charged with "violating, attempting to violate, and conspiring to violate a regulation"—a crime that carried a possible 20-year prison sentence. Newspapers wrote regularly about Earle's legal battle, and while some called his actions un-American, donations poured in from across the country. Earle was convicted but won an appeal, and was acquitted without serving jail time. The family left Hawaii for Hiroshima and arrived on June 30, 1960, making Mikami the first Japanese person to sail around the world on a recreational vessel.

The *Phoenix* didn't stay in port for long. The family took

Pacific Ocean
As they approached the edge of the test zone, Earle was "like a run-down watch—quiet, momentarily not functioning, but relaxed."
NORTH AMERICA
The test zone stood directly between Hawaii and Japan. "I wish I felt noble and heroic—but don't," Earle wrote, "I just feel put-upon."
One year, the ship crossed the International Date Line on Jessica's birthday, so the family celebrated it tw ce.
SOUTH AMERICA
NEW ZEALAND
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a trip across the Sea of Japan to Nakhodka, Russia, to protest Soviet nuclear weapons testing. When they couldn't dock, Barbara made the decision to turn around without consulting her husband. On the way back, the rudder broke, and the boat almost crashed into rocks.

"When we went into the test zone, expectations formed," says Jessica. "Japanese people said, 'You're our voice in America. We look to you for nuclear war to end.' We internalized that." Barbara and Earle's relationship fractured, and the couple divorced in 1964. According to friends and family, once the relationship ended, Earle rarely spoke of Barbara or his children. The family would never sail aboard the *Phoenix* together again.

But the *Phoenix*'s adventures were hardly over. As the Reynoldses were splitting, the boat was on the verge of becoming an international symbol for peace.

BY 1967, the United States had nearly 200,000 troops in Vietnam. Quakers around the world had condemned the conflict and feared it could lead to hundreds of thousands of deaths. A rebellious new organization called A Quaker Action Group, or AQAG, believed taking direct action—dangerous and illegal protest in Vietnam itself—was the only way to stop the war.

Most Quaker groups were service-oriented and law-abiding. They provided medical care or lobbied the government. But service groups were already delivering aid in Vietnam's American-supported South, and AQAG wanted to sail medical supplies into North Vietnam.

When Earle was in Hawaii fighting the charges against him, he began attending Quaker meetings and eventually converted. In 1966, one of the founders of AQAG, who had been on the *Golden Rule* in Hawaii, reached out to him: They wanted to use the *Phoenix* to sail into Vietnam. Earle agreed.

George Lakey, a founding AQAG member, thought sailing to Vietnam was "a drippy, corny idea," but he didn't have a better suggestion. He was "not a boat person," and seeing the *Phoenix* for the first time didn't change his mind. He shakes his head remembering the yacht. "It was so sloppy and tiny."

AQAG faced opposition from the United States government (who froze its bank accounts, stopped accepting packages for the organization, revoked members' passports, and threatened 10-year prison sentences under the 1917 Trading With the Enemy Act), the North Vietnamese (who refused to grant them visas), and other Quakers (who felt an illegal voyage would erode support for the organization's more established service efforts).

The idea of bringing medical supplies to North Vietnam on a boat, against the wishes of the U.S. government and in the path of the Navy's Seventh Fleet, was controversial. "I never felt it was flippant," Lakey says. "I just thought it was warranted under the circumstances. I saw no chance of getting the U.S. out of the Vietnam War unless we were forced out."

The crew launched on March 22, 1967. During the five-day journey, "hearts were in people's mouths," says Lakey, who followed the voyage's progress from afar. "It wasn't a great chance for reevaluation of the Vietnam War; it was, 'Oh my God, these people are going to die.'"

Tension on board was heavy. Earle, who served as captain, wanted to carry a gun, despite it being against Quaker beliefs. He barked orders and was impatient with the group's insistence on making decisions through consensus.

"On a boat you obey the skipper. It is not a democracy.

It's not a Quaker meeting," Jessica explains. Earle was autocratic and irritable, and the Quaker crew did not cherish his beloved boat. "This was the first time in my 13 years of association with the *Phoenix* that there were on board people who disliked her, to whom the boat was a necessary evil," Earle wrote in a letter to AQAG leadership. The *Phoenix* and her crew spent five days seasick as they traveled from Hong Kong to the city of Haiphong.

While they waited in the Gulf of Tonkin to dock, the harbor went dark. Someone shouted, "Air raid!" and flames streaked across the sky. The activists watched in horror as five surface-to-air missiles crawled overhead. The *Phoenix* shook as the bombs exploded. They were told an American plane had been shot down.

Ten minutes later, the North Vietnamese navy piloted the boat down the river to Haiphong. For the next two weeks, the Quakers, always accompanied by the North Vietnamese, attended banquets, met patients in hospitals, and visited bombed villages. Earle tried to stay on the boat. According to Jessica, he felt it was a "huge propaganda ploy that made the crew of the *Phoenix* seem extremely anti-American." He declined to go on another trip, but he continued to loan his boat to the Quakers.

The press covered all of it. Like the Reynolds' trip to the nuclear test zone, the public and media response to the voyage was mixed. Those opposed to the war applauded the Quaker efforts to aid civilians and raise awareness. Those who supported the U.S. intervention claimed the protests were aiding the enemy and putting U.S. soldiers' lives in danger. But Lakey and the rest of AQAG considered the trip a success.

When the Quaker group tried to arrange a second trip to Haiphong, the North Vietnamese asked the *Phoenix* not to return. The group decided to deliver medical supplies to the South Vietnamese city of Da Nang, demonstrating they weren't taking sides.

Lakey, who says that God called on him to make the second voyage, was miserable during the trip. Seams had opened and the cabin "was like crawling into a wet sponge," he says. The crew arrived in Da Nang on November 19, 1967, but the South Vietnamese would not let them dock because they were also bringing medicine to the Unified Buddhists.

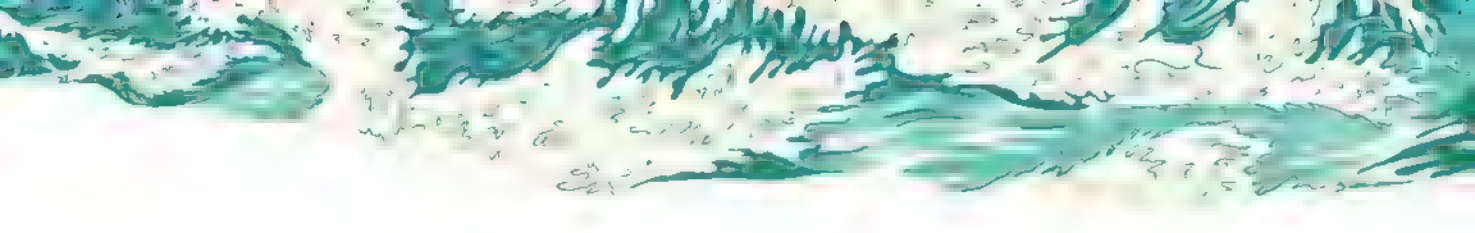
A standoff ensued. The Quakers refused to leave without delivering their medical aid, so the South Vietnamese tried to tow the *Phoenix* out of Da Nang Harbor. The crew had spent hours deciding what to do if this happened. With the floodlights of gunboats illuminating the yacht, Lakey and Harrison Butterworth, an English literature professor, jumped into the water.

Butterworth "took off swimming like Tarzan in a movie," captain Bob Eaton says. Onshore, he got a face-to-face meeting with a Vietnamese general, but the answer was still "no." They kept trying. At one point, the Vietnamese set up a fire line: If the *Phoenix* crossed, they'd be shot. They sailed through it anyway.

"We called their bluff," says Eaton, his voice cracking, nearly 50 years later. "If we'd all been shot, I guess people would have said how brave we were, or how stupid. But we were stupefied. It didn't calculate as a threat."

Still, the crew was unsuccessful. They took the supplies to Hong Kong and sent them to the Unified Buddhists via freighter. In January 1968, the *Phoenix* made a final trip to North Vietnam, but officials cut the visit short. The Viet Cong had launched the Tet Offensive and expected the South Vietnamese or Americans to "bomb the port to ashes" in retaliation, Eaton says. "We didn't want to add to the confusion having to protect us. We left with a very heavy heart."

COURTESY JESSICA REYNOLDS



"IF WE'D ALL BEEN SHOT, PEOPLE WOULD HAVE SAID HOW BRAVE WE WERE. Or how stupid."

THE NATURAL INCLINATION of every boat everywhere is to sink. Every vessel that is floating is floating because of the work, time, and money someone—usually many someones—invested to keep it from going under. It's here that the *Phoenix* began its most harrowing journey.

After the Vietnam War, the *Phoenix* was returned to Earle, who twice attempted to sail it to China. He envisioned a goodwill voyage of "friendship and reconciliation," since Japan and China had no diplomatic relations. Neither nation was interested. The *Phoenix* was forced to turn around 20 miles from China, and when Earle returned home to Japan, the government kicked him out of his adopted country.

Earle took the *Phoenix* across the Pacific Ocean a final time and sold it to a man named Tomas Daly for $20,000. Daly, who is now 75, was in awe of Earle. On the phone from his home in Mexico he compared Earle—favorably—to Bernie Sanders and Edward Snowden. He too wanted to circumnavigate the world in the *Phoenix*, but after pulling tons of pig iron out of the bilge, stripping the wood, and repairing the dry rot, he realized it was never going to work. In 1977, Daly sold the *Phoenix* to a man named Norman Sullivan for $10,000.

By 1990, the boat was up for sale again. It had fallen into disrepair, but Al Hugon bought it, unaware of its past. He owned the ship for nearly 20 years, sometimes living on it, but his printing business struggled, and by 2007, he could no longer afford the upkeep or fees.

"You have to live on it," Hugon says. "You can't even just go down to clean and work on it on a Saturday or Sunday. You have to keep the engine and the gearbox running, the bilge pumps working. You have to haul it out of water every two, three years." He tried to get surviving members of the Reynolds family to take it. He approached Greenpeace and some museums. When no one had the money or will to fix it, he put the *Phoenix* on Craigslist for free.

John Gardner, a 31-year-old recovering meth addict with no money or sailing experience, saw the ad. He knew the boat's history and imagined "helping humanity," specifically teenage gang members. He took it. "I just want to save this historical boat and save some kids. I want to put them in uniform and sail them around the world," he told the *Stockton Record*.

As Gardner lugged the *Phoenix* out of San Francisco Bay, the boat ran aground twice. Then, as he towed it up the north fork of the Mokelumne River in Northern California, the boat hit a dock. Water rushed in. Gardner bought a solar panel to power a bilge pump, but someone stole it and, days later, he tried to pump the vessel manually. By then, the *Phoenix* was more submarine than sailboat.

Just off an overgrown island, the *Phoenix*—a civilian boat that had sailed around the world, been designated a national shrine in Japan, traveled to two nuclear testing zones, and made three wartime trips to Vietnam—now rests in muck, 25 feet underwater.

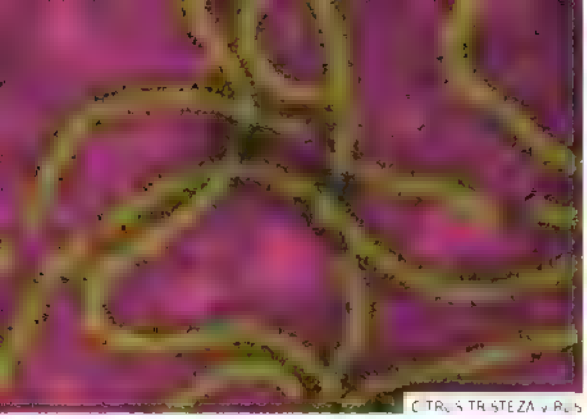
Last year, a group of volunteers finished a five-year restoration of the *Golden Rule*. Some of the people involved in that restoration have turned their attention to the *Phoenix*. Donations are trickling in. One person even pledged $25,000 to raise the boat if the Reynolds family can form a nonprofit for its restoration. In July, a local sheriff located the boat and took a sonogram. A diver examined it more closely and told the family that "every minute it's down there, it's deteriorating," says Jessica. Getting it out of the water will be "just like a baby being born. As soon as it's out there are going to be people there to wrap it, cuddle it, get it to [a salvage company in] Washington." The whole restoration could cost $750,000.

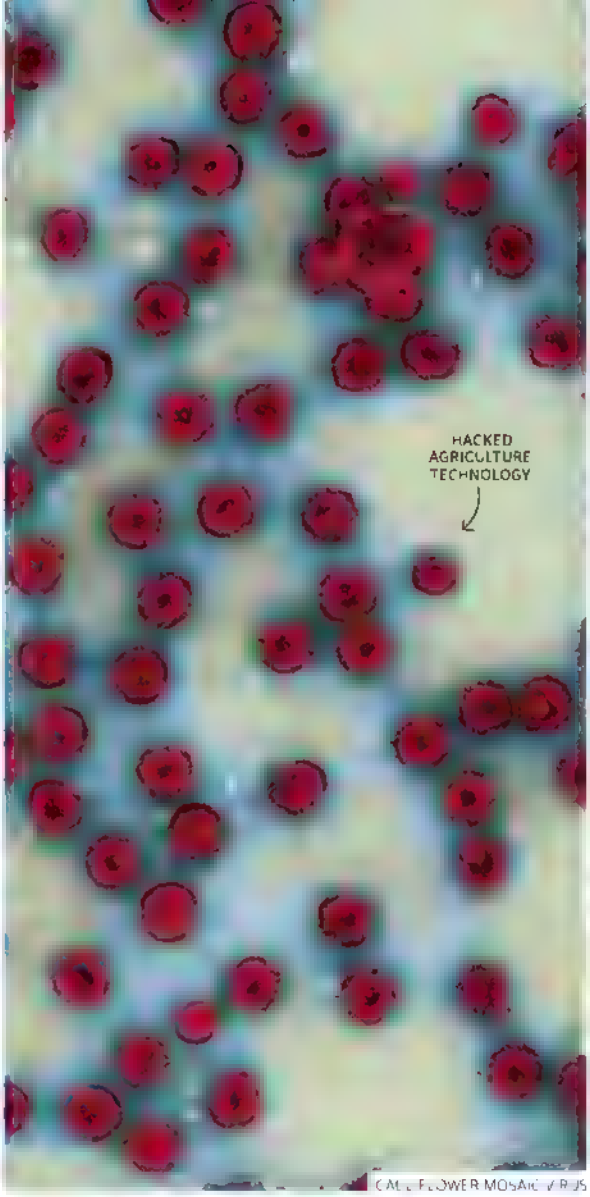
The task of forming a nonprofit and raising money for the restoration has fallen to Naomi Reynolds, Earle's granddaughter, who lives an hour and a half from the boat's resting place. She wants to save the boat because it's a family relic that represents something bigger—"that intersection of a major historical thing with a normal American family: mom and dad and 2.5 kids and the white picket fence," she says. However, by her own description, she is "not an extroverted person," and she worries she can't generate enthusiasm for the project.

Others are hopeful. Eaton, who captained the *Phoenix*'s second and third trips to Vietnam, says that when people first started talking about restoring the *Golden Rule*, he was skeptical. It wasn't until he saw the ship sailing again that he realized its value. "I don't buy into relics in a church sense, for worship, but in fact they are important. They us tell us who we were; therefore who were are; therefore who we might be," he says. "The question about bringing the *Phoenix* back is whether there's a community of people who can breathe life into it." After all, if there's anything a phoenix is good at, it's rising back to life. ❀

Atlas Obscura

This story was co-produced with Atlas Obscura the definitive guide to the world's hidden wonders. Read more at atlasobscura.com

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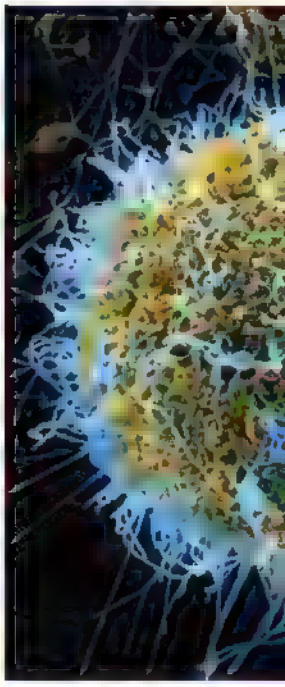

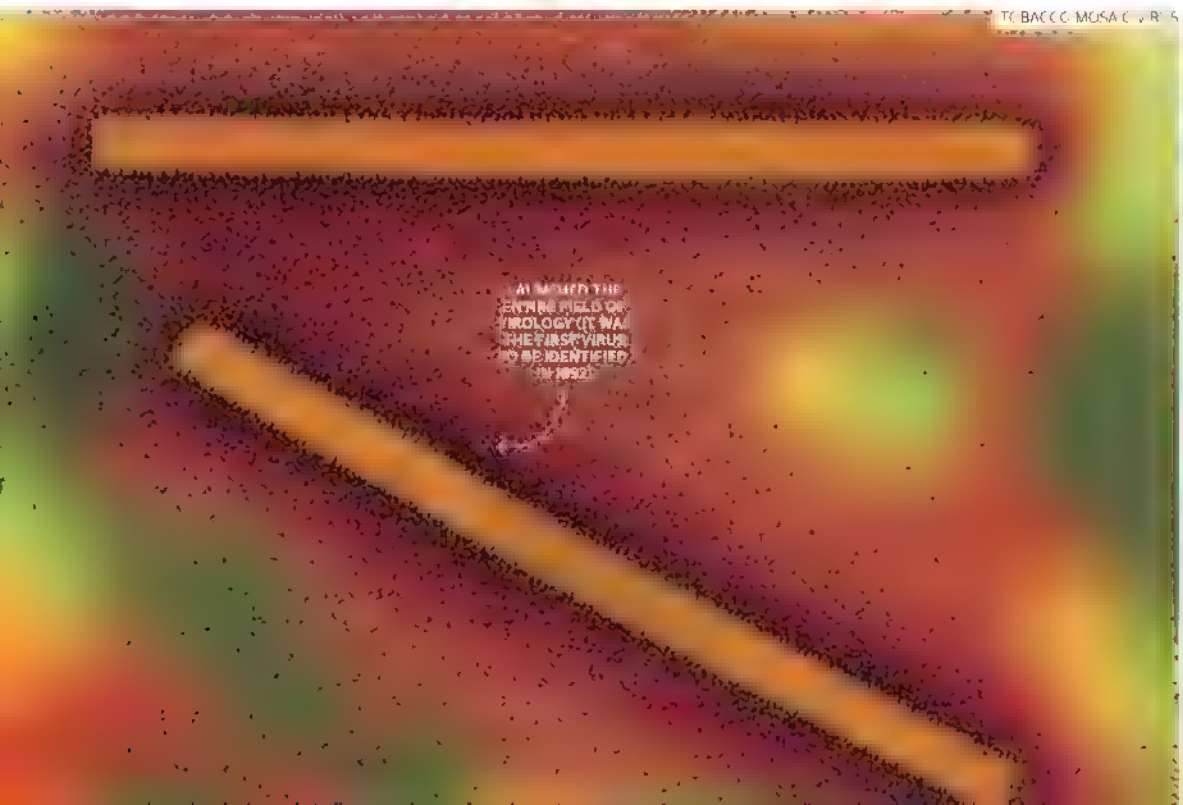

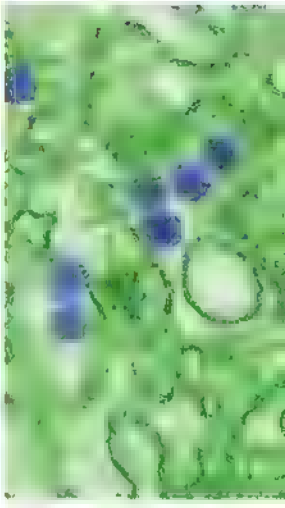

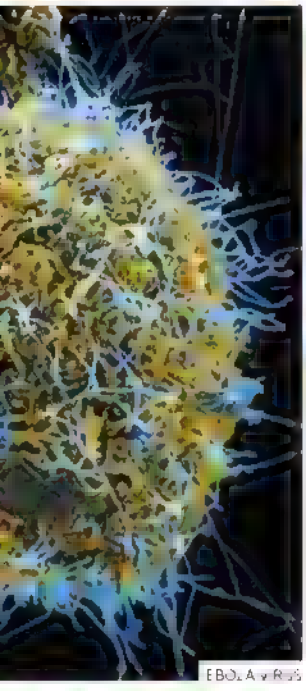

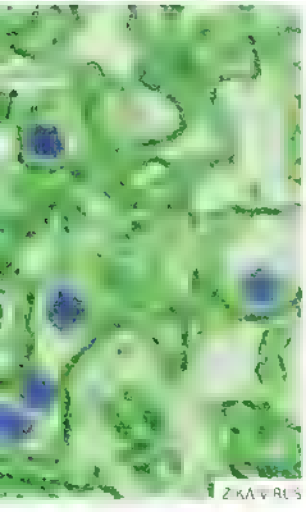

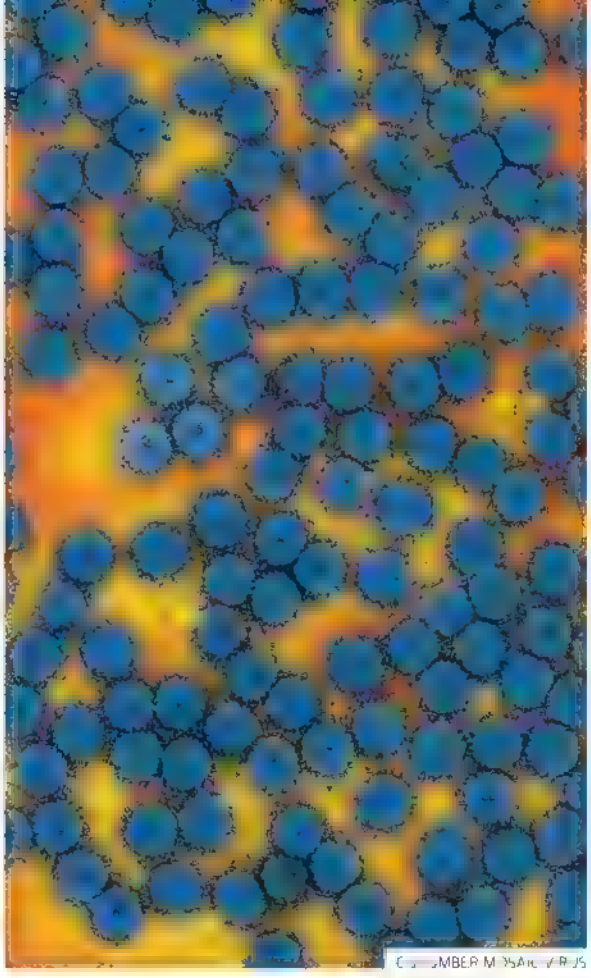

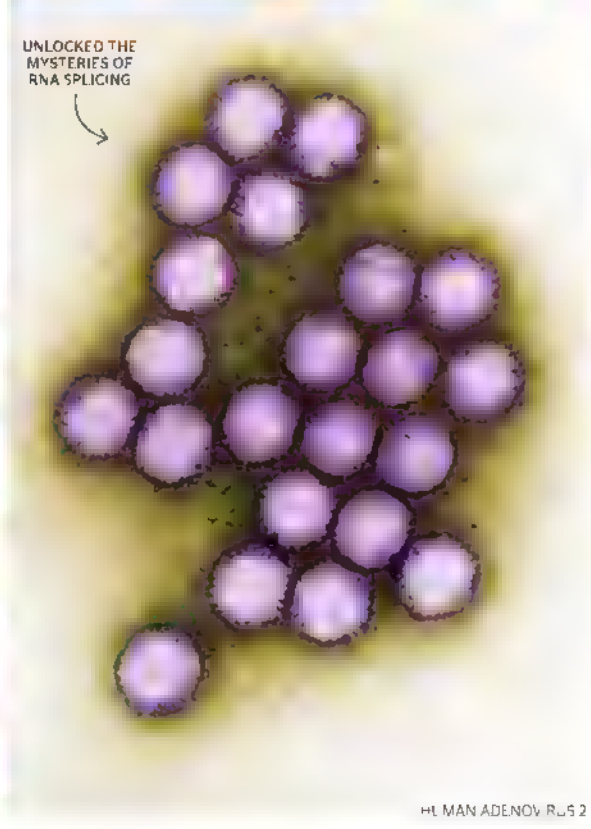

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READ THIS!

GOING VIRAL

A new book illustrates the strange beauty of microbial supervillains.

BY **MEG ROBBINS**

Can a virus be *good*? Marilyn J. Roossinck, professor of plant pathology and environmental microbiology at Penn State University, says yes! It's just that "the good viruses never get attention." Enter her new book, *Virus*, which profiles 101 infectious agents alongside colored micrographs revealing their striking beauty. Sure, plenty of viruses *are* bad, but some are surprisingly beneficial. Learn how the *Curvularia* thermal tolerance virus (which Roossinck herself discovered) enables a few plants to survive in Yellowstone's geothermal soil, and how a herpes virus helps mice survive bubonic plague. Then there's the story of the *Semper Augustus* tulip, distinguished by its red and white stripes. The source of the look? A virus (which made the flowers an international sensation but rendered them too fragile for widespread planting). "I often tell people I've been in love with viruses for a long time," Roossinck says. "They never cease to fascinate me. They're very, very small, very, very simple, and they can have a huge impact."

Virus: An Illustrated Guide to 101 Incredible Microbes, by Marilyn J. Roossinck (Princeton University Press, $35)

SPEED READ

7 Essential Sentences on *HUMAN HAIR*

***ENTANGLEMENT: THE SECRET LIVES OF HAIR*, BY EMMA TARLO, ONEWORLD PUBLICATIONS ($23)**

1. n the early 1920s, Amer ca saw a craze for ha rnets made from human hair. The advantage: They blended in with a hairstyle wh le mag cally holding it in place.
2. Hair appeared in collars, cuffs, and blouses in the 1920s, and in hats in the 1930s and 1970s.
3. 'n the ate 1960s some GIs reported y bought and sported "long-ha r w gs" to "face their gir fr ends and hip friends."
4. In 1883, German newspapers reported on a man who surrepti tiously cut women's hair. Sixteen braids were found in his Ber in apartment.
5. From 1910 to 1913 Phi ip Musica caused a massive bubble n the stock market by trading in what was largely phantom ha r.
6. A fu l head of hair cou d potentially withstand a weight of 26,500 pounds.
7. W gmaker Ruth Regina has a l ne of hairp eces for dogs, some made from human hair.

POP CULTURE SYLLABUS

ROLLER SKATING

JUST ROLL WITH IT

Roller-skate races became popular in the late 1800s. In 1935, one man came up with the idea of simulating a cross-country race: Twenty-five male-female pairs skated the equivalent of the 3,000-mile span—in one rink. (It took the winners 40 days.) At the Museum of Roller Skating, derby photos, programs, trophies, and uniforms are on display. The museum also features a collection of historical skates, like a gas-powered pair from 1956 that can roll up to 40 mph.

VISIT National Museum of Roller Skating, Lincoln, Nebraska, rollerskatingmuseum.com

THE WHEEL THING

When an East River developer bought the abandoned pier that the (self-named) Pu-Tang Clan used for in-line skating, the boys built another makeshift park beneath the Brooklyn-Queens Expressway. Photographer Vincent Cianni spent eight years shooting video, taking Polaroids, and interviewing the young Latino skaters, for whom skating was far more than a pastime—it was a way of building community in their Brooklyn neighborhood.

READ *We Skate Hardcore: Photographs from Brooklyn's Southside*, by Vincent Cianni (NYU Press)

RIGHT FOOT FORWARD

For decades, American roller rinks have been out-of-sight nexuses of civil rights activity. Some of the first "sit-ins" to protest segregation were actually "skate-ins," according to Victoria Wolcott, professor of history at SUNY Buffalo. Today, the rinks are home to a subcultural movement: skate dancing. At Skate Jamz across the country, part-artists-part-athletes combine elements of hip-hop and break dancing as they perform in front of crowds of up to 8,000. Dyana Winkler and Tina Brown's documentary dives into the lives of the skate dancers who are pioneering the form.

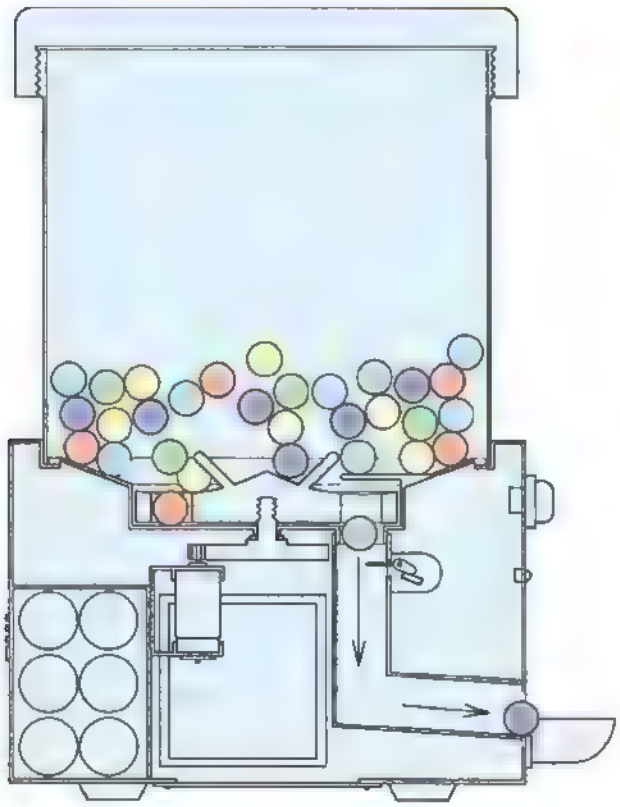
WATCH *United Skates*, unitedskatesdocumentary.com

Scenes from a 1950s roller derby

PATENTLY ABSURD

Reward Candy Dispenser

Patent: US 5823386 A | **Published:** 10/20/1998



As any multitasker knows, it can feel impossible to sit at a computer and focus on work that needs to get done. What if something happens on Facebook? How can you focus until you know who's on the Wikipedia list of left-handed historical figures? To force concentration, many resort to draconian measures like limiting Internet use or (gasp!) going offline altogether. But the inventors of this tool tap into what behavioral scientists and kindergarten motivational speakers have long known: Treats get results.

The Reward Candy Dispenser for Personal Computers is positive reinforcement for desk jockeys. An optical sensor attaches to your screen to keep an eye on what you're doing. When you achieve your target (say, sending that email or reading all the way through a long news story), a signal is sent to a container on your desk, and, as with a gumball machine, a single piece of candy is released into a chute. Want another? Get more work done! Lab-rat life never tasted so good.

NOV. 14 NATIONAL PICKLE DAY

HOT DATE!

In Connecticut, it's illegal to call a brined cucumber a pickle unless it will bounce after being dropped from a height of a foot. (The statute dates back to a 1948 lawsuit.)

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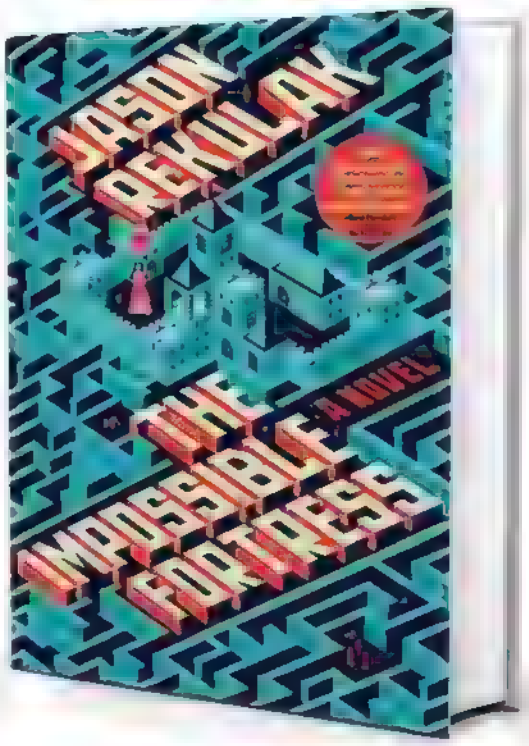
ALAMY

TO DO

20 WAYS TO KEEP IN TOUCH

Over the years, an array of talented people—from bestselling young adult authors John Green and Ransom Riggs to family reunion organizer A.J. Jacobs (also a bestselling author!) to linguistics guru Arika Okrent (find her columns at mentalfloss.com!) and plenty more—have graced our pages, helping make each issue of the magazine special. Here's a smattering of what some of our contributors are up to now, and how you can stock your cultural coffers with their works.

1

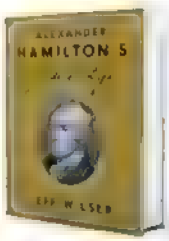


JASON REKULAK ***The Impossible Fortress*** What happens when a 14-year-old boy tricks a girl in order to steal a copy of *Playboy*? Don't miss this debut from the co-creator of the *mental_floss* "In a Box" series.

2

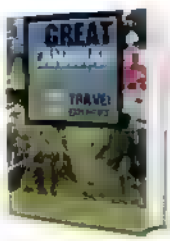
AUTUMN WHITEFIELD-MADRANO ***Face Value*** Our copy editor takes a smart look at the science, sociology, and language that shape how we perceive beauty.

3



JEFF WILSER ***Alexander Hamilton's Guide to Life*** A frequent contributor, Wilser imparts lessons from the founding father in this must-read for aspiring duelists.

4



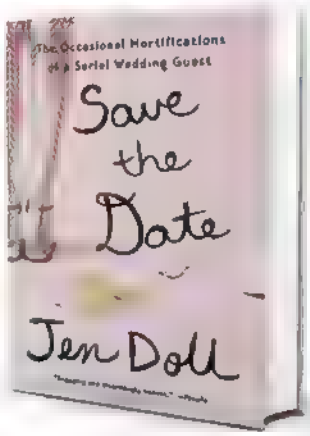
ROBIN ESROCK ***The Great Canadian Bucket List*** Where can you dig for dinosaurs and float on a dead sea? Canada! Travel writer Robin Esrock unveils the True North's secrets.

5

MACCABEE MONTANDON ***Ocean Parkway***
Our editor at large has written a delightful Vimeo series, which stars *mental_floss* fans Daphne and Oona Montandon.

"The series is funny, irreverent, and filled with only-in-Brooklyn moments." —*The New York Times*

6



JEN DOLL ***Save the Date*** Read our managing editor's memoir about being a serial wedding guest while you await her next book, a young adult novel about teens in small-town Alabama.

7

JULIE WINTERBOTTOM ***Prankopedia*** It's no surprise that Winterbottom is a fountain of good ideas for our Scatterbrain section. Her book contains over 70 fun pranks that are gross and crazy—but never mean. It's perfect for the April Fool in your life.

8

JESSANNE COLLINS ***Blank Spaces***
Our editor in chief writes a weekly newsletter about the illusion of time, the meditative qualities of milkshakes, and college admissions tips from Sylvia Plath. tinyletter.com/jessanne

9

DAVID ISRAEL **Paul Taylor Dance** A longtime writer, Israel is also a composer! The Paul Taylor Dance Company will perform two of his pieces at Lincoln Center in March 2017.

10

PAUL COLLINS ***Duel With the Devil*** You probably know Alexander Hamilton and Aaron Burr for their famous, fatal duel. But did you know they worked together to solve America's first murder mystery? Frequent contributor Collins explores.

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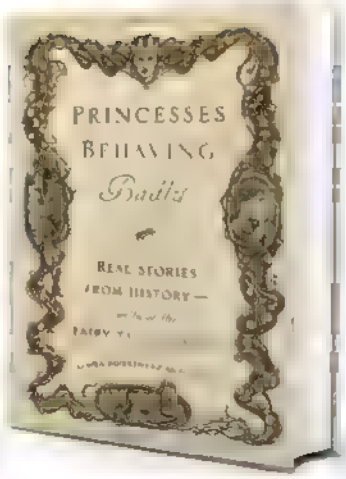

LINDA RODRIGUEZ MCROBBIE ***Princesses Behaving Badly*** Don't let the bedtime stories mislead you. Early features writer McRobbie shows how princesses have led badass lives.

12

FOSTER KAMER ***Record Store*** Kamer, our executive editor, is helping edit a compilation about record stores with Jack Antonoff, Grammy-winning songwriter for Bleachers and Fun, due in 2017. The book will trace the glory days of CDs, while celebrating how much the way we rock out has changed.

13

SAM KEAN ***The Tale of the Dueling Neurosurgeons*** Sam Kean, early science writer, finds the best way to unlock the brain's secrets—injuries!

14

MATTHEW ALGEO ***The President Is a Sick Man*** The subtitle says it all: "Wherein the Supposedly Virtuous Grover Cleveland Survives a Secret Surgery at Sea and Vilifies the Courageous Newspaperman Who Dared Expose the Truth."

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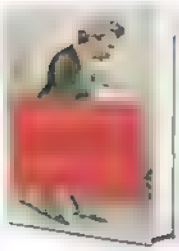
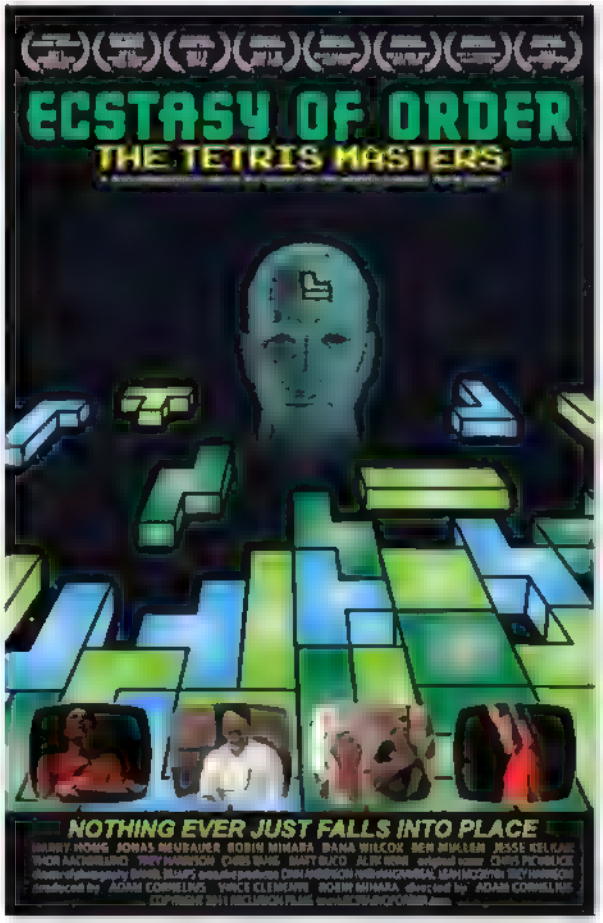


RICHARD ZACKS ***Chasing the Last Laugh*** Early history contributor Zacks gave us his "Underground Education" column. Here he explores Mark Twain's true talent—losing money.

16



CHRIS HIGGINS ***Ecstasy of Order: The Tetris Masters*** This documentary from our long-term resident blogger follows players at the 2010 Classic Tetris World Championship.

17

LUCAS ADAMS **New York Review Comics** Our quizmaster also edits a comics imprint with the *New York Review of Books*.

> The imprint publishes "the strange and wonderful things that only comics can do"

18

PRIYANKA MATTOO ***The Polka King*** Mattoo, a film producer and trusty freelance reporter, just finished filming her latest flick, which stars Jack Black, Jason Schwartzman, and Jenny Slate.

19

MAGGIE KOERTH-BAKER ***Before the Lights Go Out*** The U.S. must change the way it consumes energy. But how? Koerth-Baker, our first assistant editor, paints a picture of our energy future.

20

TIM MURPHY ***Christodora*** Junkies, hipsters, and AIDS patients all collide in Murphy's debut novel revolving around the iconic Christodora building in New York's East Village.

2 Where was Russian dressing invented?
- A New Hampshire
- B Poland
- C Quebec
- D Latvia

3 Early 20th-century American cartoonist Tad Dorgan was responsible for each of the following phrases except what?
- A Yes, we have no bananas
- B The bee's knees
- C The cat's pajamas
- D Can you spot me a few clams?

4 In 1859, young people in America caused a moral panic by participating in what?
- A Photography
- B Hypnosis
- C Chess
- D Hot-air ballooning

5 In Vancouver, British Columbia, it is illegal to build a new house with what?
- A Bay windows
- B Pet doors
- C Gutters
- D Doorknobs

6 In 1524, Giovanni da Verrazzano gave what name to the site that would become New York City?
- A New Angoulême
- B New Orange
- C New Venice
- D New Amsterdam

7 Which is not one of the seven wonders of Illinois?
- A Starved Rock State Park
- B Willis Tower
- C Wrigley Field
- D Bahá'í House of Worship

8 In 1953, East Germany's government recommended its orators describe the British using a list of "approved insults." Which was not on the list?
- A Effete betrayers of humanity
- B Conceited dandies
- C Carrion-eating servile imitators
- D Fiendish elderly harassers

9 Which woman was not married to Julius Caesar?
- A Cornelia
- B Pompeia
- C Servilia
- D Calpurnia

10 According to myth, how did ancient Chinese warriors attempt to scare off their enemies before entering battle?
- A Juggling
- B Tying snakes into knots
- C Dancing
- D Singing arias from a Peking opera

11 Robert Taylor, the marketer of Calvin Klein's Obsession fragrance, invented what household item?
- A Liquid soap
- B Glass cleaner
- C Plug-in air freshener
- D Velcro

12 The flow of a non-Newtonian fluid changes depending on how much stress is applied. Which is a non-Newtonian fluid?
- A Gasoline
- B Ketchup
- C Water
- D Mineral oil

13 Which creature from Down Under was an unofficial mascot of the 2000 Summer Olympic Games in Sydney?
- A Fatso the Fat-Arsed Wombat
- B Crocodile Dundee
- C Karl the Cash-Crazed Kangaroo
- D Captain Goodvibes

14 The Thuggee was a murderous gang of robbers that plagued India for 600 years. What was the group's weapon of choice?

- A Handkerchiefs

- B Pigeons

- C Brass knuckles

- D Sword-concealing pants

ALAMY (EATING TRAY); ISTOCK (HANDKERCHIEF, PIGEON BRASS KNUCKLES, PANTS, BLOKY SKATEBOARD, NEWNOTE)

15 What was the motto on Queen Elizabeth I's crest?
- A "No other choice"
- B "Not so bad"
- C "Always the same"
- D "Liz knows best"

16 What was Edgar Rice Burroughs before he wrote the Tarzan books?
- A A lumberyard worker
- B A pencil-sharpener salesman
- C A tunnel watchman
- D A hobo

17 What phenomenon regularly preceded notably good wine harvests in the 19th century?
- A Earthquakes
- B Floods
- C Comets
- D Locust plagues

18 What did Norway ban between 1978 and 1989?

A Baby buggies

B Skateboards

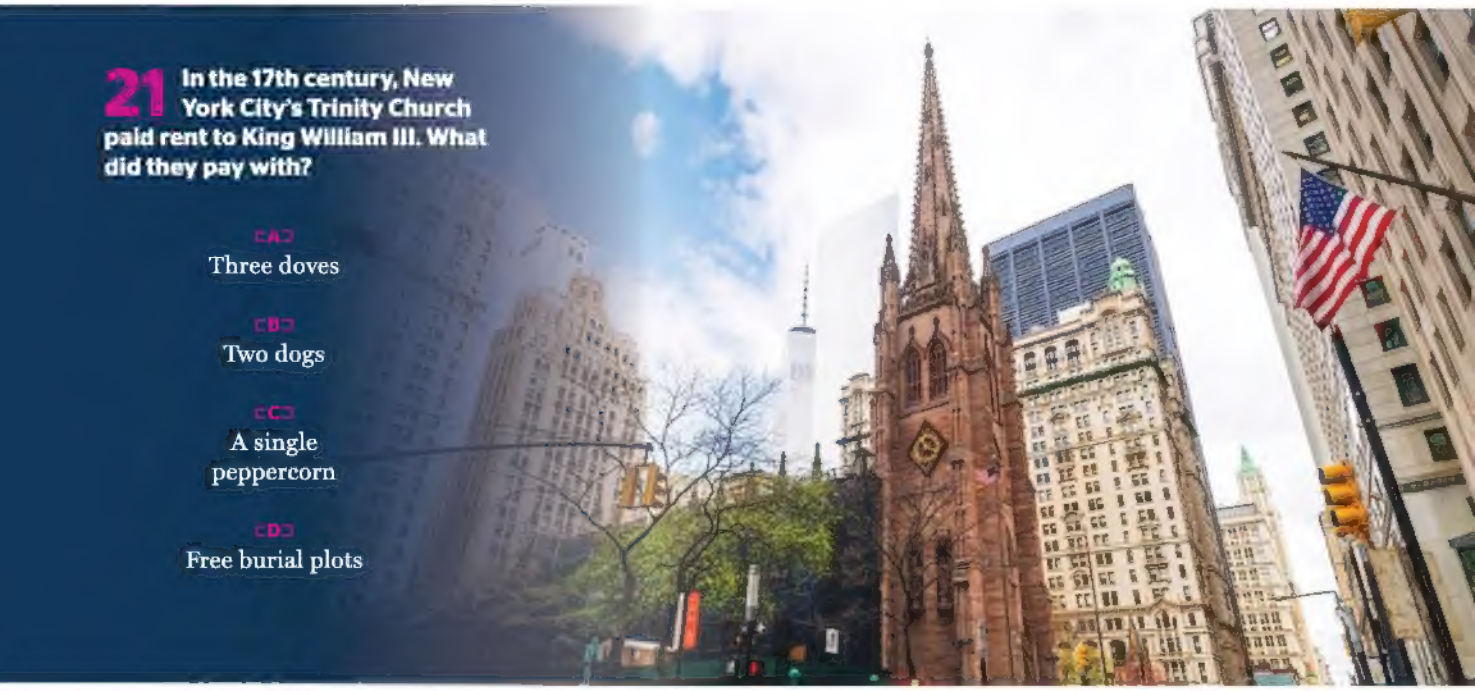
C Chewing gum

D Tie clips

19 Nikola Tesla proposed a machine that would make war impossible. What did the machine make?
- A Tidal waves
- B Static electricity
- C Magnetic bullets
- D The "brown noise"

20 Which of the following is a proven benefit of curiosity?
- A It aids memory retention
- B It can be hacked to help you make healthier choices
- C It helps people cope with midlife crises
- D All of the above

21 In the 17th century, New York City's Trinity Church paid rent to King William III. What did they pay with?
- A Three doves
- B Two dogs
- C A single peppercorn
- D Free burial plots



ANSWERS
1. D (They hope the study can help "illustrate a more efficient way to consume viscous substances such as Jell-O, pudding, grits, and soups in competition.")
2. A
3. D
4. C ("Chess is a mere amusement of a very inferior character," griped *Scientific American*.
5. D (Lever handles must be used instead.)
6. A (It was named for King François I, the former Count of Angoulême, France. "New Amsterdam" came about in 1625.)
7. B
8. D
9. C (Servilia was Brutus's mother, but that didn't stop Caesar from having an affair with her.)
10. A
11. A (To lock out competitors, Taylor bought a year's supply of pump bottles for $12 million.)
12. B
13. A
14. A (The "Thugs" used them to strangle people.)
15. C
16. B
17. C
18. B
19. A (The waves would be powerful enough to drown entire fleets, rendering sea war impossible.)
20. D (Magazine quizzes in particular have superlative benefits.)
21. C

YOUR SCORE!

0-5 Pretty Good
6-11 The Best
12-16 The Worst
17-21 Also Pretty Good

"HUH?" IS UNDERSTOOD IN ALL LANGUAGES.

ALAMY

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